Exploring the Impact of the Government-Funded Teacher Education Policy on Career-Choice Motivation and Study Engagement of Pre-service Teachers in P.R. China

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ABSTRACT

The Government-Funded Teacher Education Policy (GFTEP) has been implemented since 2007 in the six teacher-training universities directly under the Ministry of Education, P. R. China. Informed by the Expectancy-Value theory and the Undermining Effect of Extrinsic Reward theory, the study reported in this thesis explores the impacts of this funding policy on career-choice motivation and study engagement of Chinese pre-service teachers. It employed a combination of quantitative and qualitative methods with the quantitative approaches as a base to explore the impacts of the funding policy and the qualitative methods as an additional follow-up layer to reflect on the quantitative findings.

Quantitative data were obtained via 712 questionnaires administered to Chinese pre-service teachers from three universities in P.R. China. These participants are comprised of the policy-funded pre-service teachers (N=309) and the self-sponsored pre-service teachers (N=403) in their first-year and last-year undergraduate studies in diverse teacher-training programmes. These data were analysed through multiple quantitative methods. Qualitative data were gathered by online audio interviews with seven policy-funded pre-service teachers having different attitudes towards the funding policy, and reported in seven narrative stories.

The main finding reported in this study was that the funding policy has had no negative impacts on Chinese pre-service teachers' motivation to choose teaching as a future career or on their current study engagement in teacher-training programmes. The finding could be supported by the Expectancy-Value theory together with the narrative stories which argue that the opposite impacts of different terms in the funding policy on career-choice motivation and study engagement could counteract with each other to show "no negative impacts". This finding, along with the relatively higher intrinsic career-choice motivation of policy-funded pre-service teachers, suggests that the policy aim to establish a stable and high-quality teaching force for the country has the potential to be achieved. However, potential undermining effects of the funding policy on intrinsic career-choice motivation and study engagement were identified, which suggest the funding policy still needs to be improved.

In addition, findings of this study added knowledge to the research field of teacher motivation in Chinese context, such as the types, ranking, and classification model of career-choice motivation for Chinese pre-service teachers, and the relationship between their career-choice motivation and study engagement. Chinese pre-service teachers' demographic profile,

perceptions about teaching, and attitudes towards the funding policy were also described in this study.

Implications of these findings for the funding policy, teacher education, and career education in China are discussed. Recommendations are also suggested with the aim of increasing Chinese pre-service teachers' intrinsic career-choice motivation and study engagement through targeted education policies and practices.

ABBREVIATIONS

ANOVA: Analysis of Variance

AM: Altruistic Motivation

CCM Scale: Career-choice Motivation Scale

CNKI: China National Knowledge Infrastructure

DBT Scale: Decision to Become a Teacher Scale

EFA: Exploratory Factor Analysis

EM: Extrinsic Motivation

EM Approach: Expectation Maximization Approach

FIT-Choice Scale: Factors Influencing Teaching Choice Scale

NCEE: National College Entrance Examination in P.R. China

GFTEP: Government-Funded Teacher Education Policy

GFTEP-S Scale: Government-Funded Teacher Education Policy Satisfaction Scale

HSG: High Satisfaction Group

IM: Intrinsic Motivation

IMF: International Monetary Fund

LSD: Least Significant Difference

LSG: Low Satisfaction Group

MANOVA: Multivariate Analysis of Variance

MSG: Medium Satisfaction Group

MSA: Measure of Sample Adequacy

PFPTs: Policy-Funded Pre-service Teachers

PAT Scale: Perception about Teaching Scale

SPSS: Statistic Package for Social Science

SSPTs: Self-Sponsored Pre-service Teachers

UWES: Utrecht Work Engagement Scale

UWES-9: Utrecht Work Engagement Scale with 9 Items

UWES-S: Utrecht Work Engagement Scale for Students

UWES-S-17: Utrecht Work Engagement Scale for Students with 17 Items

VIF: Variance Inflation Factor

CHAPTER 1: INTRODUCTION

This research investigates the impacts of the Government-Funded Teacher Education Policy on pre-service teachers' early career-choice motivation and their study engagement in teacher training. As subsequent sections of this chapter explore in more details, the policy provides selective students with free tuition and an allowance to living cost, and binds them to a period of teaching service, some of which will be in a rural school. As is explained later in this chapter, this policy addresses the need to provide teachers for rural schools and to ensure continuousness of teaching service. This research project does not seek to investigate the success of the policy to achieve the two goals, although other research may intend to do so. What this project addresses is whether the policy impacts unfavourably or favourably on pre-service teachers' career-choice motivation and study engagement.

In order to explore the impacts of the policy, the methodology applied in this study for data collection and analyses is predominantly quantitative. Findings from the qualitative study provide an additional layer to the quantitative research findings. Details about the research methodology can be found in Chapter 3, and the quantitative and qualitative data are analysed in Chapter 4 and Chapter 5 respectively. The last chapter concludes and discusses major findings of this study, and provides recommendations for improving the policy and suggestions for future studies. Before referring to these chapters, the context information about the funding policy and the research questions of the current study are introduced in the current chapter.

1.1 Brief History of Tuition-Free Modern Teacher Education in China

Throughout the history of modern teacher education in China, various preferential benefits, such as free tuition fees and other costs, have been predominantly granted to pre-service teachers compared with other university students. Nevertheless, pre-service teachers were charged for some short periods of time during this history. For example, pre-service teachers were charged for teacher training fees from 1922 when Beiyang Government conducted school system reforms; however, they were free to pay tuition fees since 1927 when the Nationalist Government restarted to fund teacher education. Once again, around the year 1997, teacher-training colleges and universities began to charge pre-service teachers for tuition fees, and in 2003 they were fully charged. However, in 2007 teacher education finally reverted to free education. Therefore, teacher education in China seems to experience a

"pendulum" change on tuition fees (from "free" to "charged", and to "free" again) throughout its history, which will be described in the following sections.

In the late Qing Dynasty, the first modern teacher-training colleges were established by the governments, such as the Nanyang Public School Teacher Education Institute (*Nanyang gongxue shifangyuan*) in 1896 and the Imperial University Teacher College (*Jingshi daxuetang shifanguan*) in 1902. They were funded by the governments to cover all the cost for the pre-service teachers; accordingly, after graduation pre-service teachers had to teach for a given period of time (Qu & Yuan, 2010). In 1912, the Nanjing Provisional Government promulgated the Teacher Education Act (*Shifan jiaoyu ling*) and the Teacher-Training School Regulation (*Shifan xuexiao guicheng*), which stipulated that some pre-service teachers in teacher-training schools were fully or partly funded, while others were paid by themselves (Cui, 2006). According to the New Education System (R*enxu xuezhi*) started in 1922, teacher-training schools in different provinces were merged with local high schools where teacher education programmes were combined with agriculture, industry, and business education programmes which were traditionally paid by students themselves (Wang, 1985). Therefore, some high schools gradually ended the government-funded teacher education, and in provinces like *Zhejiang* bills were proposed to cancel it (Cui, 2006). However, self-sponsored teacher education was not approved by the central government. Instead, the Nanjing Nationalist Government restated in 1927 that teacher-training schools, special education programmes, and pre-school education programmes should not charge students for tuition fees, and made it free or partly free for students' accommodation fees based on their financial situations (Cui, 2006). Afterwards, teacher education in China gradually became free again. For example, the Law for Teacher-Training Schools (*Shifan xuexiao fa*) issued in 1932 formulated that students enrolled in teacher-training schools and in programmes about special education and pre-school education were all exempted from tuition fees (Wang, 1985). Similar statements can be found in later government regulations, such as the Teacher College Regulations (*Shifan xueyuan guicheng*) in 1938 and the Approaches to Implement Government-Funded Education for Students in National Teacher-Training Schools (*Quanguo shifan xuexiao xuesheng gongfei daiyu shishi banfa*) in 1944 issued by the Nationalist Government.

When the People's Republic of China was founded in 1949, all the university students had been exempted from paying tuition fees, and for pre-service teachers particularly, they had been eligible for receiving monthly subsidies to cover living costs according to the People's

Subsidies Scheme (*Renmin zhuxuejing zhidu*). This had lasted for several decades until a series of official documents were released from 1985 to 1996 which constantly modified the People's Subsidies Scheme (Mei, 2008). These modifications were not a significant reform because most pre-service teachers in teacher-training universities were still enjoying many preferential policies including scholarship and subsidy schemes compared with other university students. Nevertheless, they were signals that reform on teacher education was coming (Zhang, 2007).

The year 1997 witnessed a watershed in teacher education in China as the quantity and quality of pre-service teachers afterwards faced a decline due to the implementation of gradual charging systems in teacher-training colleges and universities (Mei, 2008). Issued by the State Council, the official document ([1994]-39) proposed that college students should pay fees by themselves and be free to find jobs, and scheduled that most higher education institutions should basically meet that requirement by the year 1997, and by the year 2000 the transformation from old education systems to new ones should be completed. As a matter of fact, starting from 2003, all pre-service teachers were fully charged for fees at teacher education institutions, which symbolised the end of free teacher education in China.

With the reforms and the rapid expansion of higher education from around 2000 to 2007, pre-service teachers in China had to pay for their own fees and some teacher-training universities were gradually transformed into comprehensive ones. The original purposes of these reforms were to enlarge financial sources for teacher-training universities and to enhance professional levels of teacher education. However, these reforms had resulted in many negative effects. For example, the transformation from teacher-training into comprehensive universities weakened the characteristics of teacher education, decreased the quality of pre-service teachers, and caused the unbalanced distribution of quality teachers in cities and rural areas. Aiming at solving those problems, a new teacher education policy – the Government-Funded Teacher Education Policy (see Appendix 5) – was issued in 2007, which made teacher education free again in the six top-level teacher-training universities in China (see Figure 1).

1.2 The Government-Funded Teacher Education Policy

The Government-Funded Teacher Education Policy (GFTEP) was initially proposed by the Ministry of Education in January 2007 in an official document – Key Working Points for Year 2007 (*2007nian gongzuo yaodian*). Two months later, it was put forward by former

Premier Wen Jiabao in the Government Work Report (*Zhengfu gongzuo baogao*). On 9 May 2007, the Government-Funded Teacher Education Policy (Trial) in Teacher-Training Universities Directly under Ministry of Education of the People's Republic of China was passed in principle by the State Council executive meeting (see Appendix 5). As a result, the funding policy has been implemented in all the six national key teacher-training universities (see Figure 1 for their locations) subordinated to the Ministry of Education from the autumn semester of 2007, which marks the return of free teacher education in China. According to official statistics (State Council, 2007), approximately 12,000 teacher candidates were attracted to the four-year teacher-training programmes in the six universities in August 2007.

1.2.1 Contexts for Implementing the Funding Policy

Several problems were confronted with teacher education and quality teacher distribution in China from 1997 to 2007, the decade before carrying out the Government-Funded Teacher Education Policy. Firstly, the quality of pre-service teachers seemed to decline during that period of time (Li, 2007). The self-sponsored teacher education negatively impacted the initiatives of talented high school graduates with poor family backgrounds to choose teacher-training programmes, and the expanded student intake for tertiary education from 1999 provided more chances for high school graduates to choose non-education programmes at a university. Both of them contributed to the decline in quality of pre-service teachers which demonstrated the weakened attraction of teacher-training programmes and teaching career for excellent high school graduates.

Secondly, the characteristics of teacher education seemed to be weakened and shifted since 1997 (Mei, 2008). Facing fierce competition and challenges in the on-going and in-depth reform of higher education system, many teacher-training institutions had transformed into comprehensive universities. This was mainly manifested in that education programmes were largely diminished and the number of pre-service teachers decreased in those universities. Consequently, their characteristics of teacher training gradually faded.

Thirdly, pre-service teachers were less likely to become a teacher, especially to become a rural-area school teacher (Liu et al., 2002). From 1997 to 2007, graduates from teacher education programmes in mainland China chose jobs by themselves, and most of them usually ended up doing jobs other than teaching. For those graduated from national key teacher-training universities, many chose to further their studies for a master degree or went

abroad to study. According to the comprehensive survey conducted by Liu et al. (2002), among pre-service teachers graduated in 2002 from Beijing Normal University and Northeast China Normal University, 40.60% and 20.91% respectively passed the exams to become a postgraduate student. For those who got a job immediately after graduation, only a few engaged in teaching jobs and most were working in companies. For those who chose to teach, they usually taught in schools in developed cites like provincial capital cities or cites in east and south coastal areas, and very few of them wanted to teach in west or poor rural areas. In Beijing Normal University, for example, about 80% of pre-service teachers chose Beijing or coastal cities as their working places after graduation. Meanwhile, they generally planned to teach in key public schools and private schools with a high salary, and correspondingly only a few chose ordinary schools or "weak" schools. These factors contributed to the already unbalanced distribution of quality teachers in China: too few teaching staff in rural area schools located in west or inland China, and too many in urban area schools.

Lastly, the gap between poor rural-area schools and developed urban-area schools was conspicuous. Compared with rich area schools, those in the rural areas were commonly insufficient of educational resources and facilities, attended by students from lower social economical family backgrounds, and in difficulty of gaining parents' supports (Liu, 2010). These inferior aspects put rural education at disadvantage and increased the difficulties in attracting teachers to and maintaining teaching force in rural-area schools in China (Chen, 2003; Lin, 2010). Consequently, the largest population of unqualified teaching force located in poor rural-area schools posed a huge challenge to the quality and equality of compulsory education of the country as a whole (Paine & Fang, 2009).

1.2.2 Aims of the Funding Policy

The purposes of the funding policy, according to the 2007 annual central government report (Wen, 2007), were to create a better atmosphere where teachers are highly regarded by the society and teaching is the most respected profession; to develop a large number of high-quality teachers; to advocate educationist-run schooling, and to encourage more young people to devote themselves to lifelong teaching and other education-related work. Similarly, in the sixth press conference of the Ministry of Education in 2007 (Song, 2007), the intentions of the Government-Funded Teacher Education Policy were concluded as: (1) to encourage excellent high school graduates with teaching ambitions to choose teacher training programmes; (2) to support pre-service teachers to teach for a long time and to teach in rural

area schools; (3) to promote teacher education reforms on enrolment, pedagogy, and recruitment during the process of implementing the funding policy; and (4) to clarify education orientations and goals for the six policy universities.

Some researchers also believed that implementation of the funding policy was a significant measure to improve educational equality and teachers' quality in China: it could provide excellent students from poor families a chance to attend higher education and hence become high quality teachers, and it would help ease the ever increasing problem of uneven distribution of high quality teachers across dissimilar communities (e.g., Liu, 2010; Mei, 2008).

Among these purposes for the funding policy stated by both officials and researchers, the same key one is to develop a large number of high-quality teachers who would like to do life-long teaching. This purpose, as understood by the present study, could be related to pre-service teachers' reasons to choose teaching as their future career and their study engagement in the teacher-training programmes (see details in section 1.3 of Chapter 1 and literature review in Chapter 2).

1.2.3 Contents of the Funding Policy

According to the official document publicised by the General Office of the State Council of China (2007), the contents of this funding policy can be described as follows:

(i) The Government-Funded Teacher Education Policy (GFTEP) is to be implemented from September 2007 as a trial in the six national key teacher-training universities subordinated to Ministry of Education, namely, Beijing Normal University, East China Normal University, Northeast Normal University, Central China Normal University, Shaanxi Normal University, and Southwest University (see Figure 1 for their locations in China). Through trying out this policy, experiences are expected to be gained, systems to be established, and foundations to be built for cultivating a large number of excellent teachers and educators.

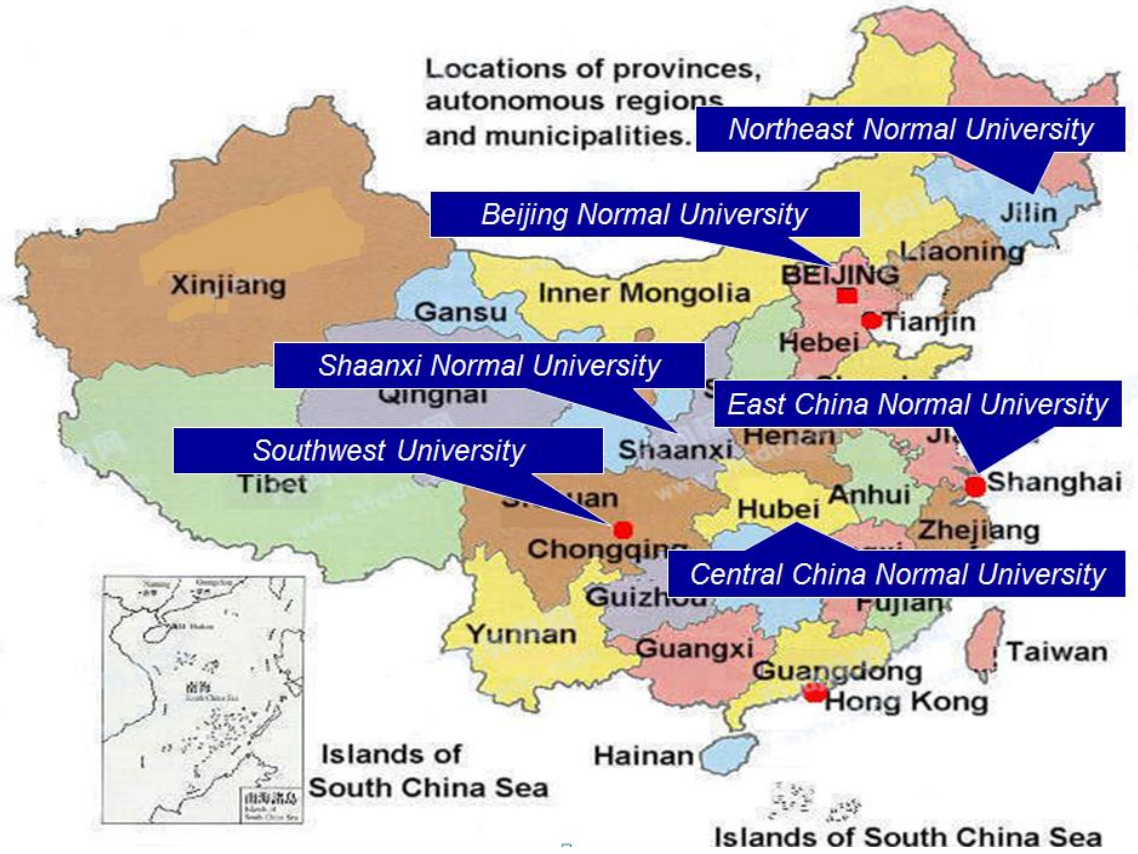

Figure 1: Locations of the Six Universities Implementing the Government-Funded Teacher Education Policy on the Map of P.R. China[1]

(ii) The policy-funded pre-service teachers (PFPTs)[2] are exempted from all the tuition and accommodation fees, and they gain an allowance to cover their living cost. All these expenditures will be paid by the Central Government.

(iii) The teacher education programmes of the six universities carrying out the policy have the priority to recruit excellent high-school graduates who are interested in teaching and determined to do long-time teaching services.

(iv) Before enrolling in a university, the PFPTs have to sign a contract with the university and the Provincial Executive Department of Education, promising to teach after graduation in a primary or secondary school for at least 10 years. They have to teach in a rural-area school

[1] http://travel.chinavista.com/images/mapbig.gif

[2] The PFPTs are a group of pre-service teachers in China who are attending teacher-training programmes in the universities currently implementing the Government-Funded Teacher Education Policy. They are different from other pre-service teachers mainly in two aspects. One is that they get free education because they are fully funded by the government for four-year teacher training at a university. The other is that they have a clear career orientation because after graduation they have to return to their home provinces to teach for at least ten years with 2 years in a poor rural-area school.

for 2 years if they work in a city school. The Chinese government encourages graduates of the PFPTs to teach for a life-long time.

Those graduates who violate the contract after graduation are subjected to repayment of all the fees originally waivered during university studies as well as an amount of fines[3]. The Provincial Executive Department of Education is responsible for managing the contract and creating a credit record for the PFPTs. For very exceptional cases, the PFPTs should get the permission from the Provincial Executive Department of Education to cancel the contract.

(v) The graduates of the PFPTs are required to return to and teach in the province where they originally came from. The local government of the province ensures that every graduate of the PFPTs who obeys the contract can get an official teaching post at a primary or secondary school. The Provincial Executive Department of Education takes the responsibility to arrange job fairs for schools to recruit new staff and for graduates of the PFPTs to choose a school to teach. In special occasions, the local governments can take a flexible or provisional measure to assign some official teaching posts to the graduates of the PFPTs.

During the period of teaching service, the graduates of PFPTs can transfer among schools and even do educational management jobs.

(vi) The undergraduates majoring in other programmes at the same university can switch to the government-funded teacher education programmes within their first two years of study if they determine to become a teacher after graduation. For those who successfully transferred, they will be retrospectively funded for their previous payments and be treated the same as other PFPTs afterwards.

After attending a university, the PFPTs have a chance to change to another major among the available teacher-training programmes of the university.

(vii) The PFPTs are generally not allowed to take examinations to become an academic postgraduate during the period of undergraduate studies and teaching services.

As a complementary compensation, the graduates of PFPTs who reach certain national standards can be enrolled as an educational professional postgraduate without sitting the exams. They could complete the courses through remote learning while teaching in schools.

[3] According to the contract, the fines are equivalent to 50% of the total fees originally paid by the central government for the PFPTs.

Given that they have successfully passed the thesis exam and their teaching service is satisfactory, they will be awarded a postgraduate diploma and a professional master degree.

(viii) The six teacher-training universities should regard the funding policy as an opportunity to promote teacher education reform for cultivating high-quality teachers and educators. To do so, they need to carefully design their teacher-training programmes according to the need of basic education development and reforms. This includes appointing famous teacher educators as tutors for the PFPTs, reinforcing moral education for the PFPTs, establishing a sound system for the PFPTs to do teaching internship for half a year in a primary or secondary school. The PFPTs are expected to have modern educational concepts, passion for teaching career, and willingness to teach for a long time so that they can become excellent teachers or even educational experts.

(ix) The quality of primary and secondary school teachers graduated from the six teacher-training universities should be set as educational quality indicator of each university. For those universities making significant contributions to educating pre-service teachers, they will be more favourably supported by the central government in terms of funding and making policies.

(x) All provincial governments, government departments, and universities sharing responsibilities to carry out the policy should be well aware of the significance and profound influence of the policy. They should take the responsibility and work together to ensure a successful implementation of this policy. The local governments should take effective measures to encourage and support graduates of PFPTs who do long-time teaching services. The funding from central government will tend to support schools in the middle and west areas of China where graduates of PFPTs teach. Local governments and rural-area schools should guarantee basic living conditions and temporary housing for graduates of PFPTs who teach and serve there. According to the requirements of this policy, the Ministry of Education, the Ministry of Finance, the Ministry of Personnel, and the Central Office of *BianZhi* should refine the approaches to carry out this policy in line with the actual local conditions so as to ensure the successful implementation of this policy at every stage and in every aspect.

1.3 Issues on the Policy-Funded Pre-service Teachers: Career-Choice Motivation and Study Engagement

Ever since the funding policy was launched in 2007 with the intention of policy-makers to improve the quality of Chinese teaching force and the educational equity in China, thousands of students every year enrolled in these government-funded teacher-training programmes. Students bring with them experiences, expectations, values, and perceptions to enter a teacher training university. Every one of them has a reason for enrolling into a university and making the choice of completing a four-year degree in a specific teacher-education programme, and the level of their study engagement in that programme, to a large degree, reflects the responsibilities associated with their choice of the programme (Pittaway, 2012).

Although the policy was perceived as a "new and innovative teacher education policy with Chinese characteristics" (Li, Huang, Xu, & Han, 2013, p. 44), there are many issues on this policy raised by the public. Among them, the question about whether the funding policy impacts pre-service teachers' career-choice motivation and study engagement is explored in the present study.

Different views relative to this question can be reviewed from various studies. Some of them believe that the students who choose to enter the government-funded teacher education programmes are motivated by the extrinsic benefits instead of intrinsic interest to become a teacher (Wu & Liu, 2008), and during the four-year university studies, they have a low level of study engagement in these teacher-training programmes due to lack of personal interest (Chen, 2013). Their argument is based on the various benefits provided by the policy. As stated in provisions of the policy, individuals who choose the government-funded teacher-training programmes will be exempted from tuition and accommodation fees and be provided with a regular allowance to cover their living cost during their four-year undergraduate studies. After graduation, employment will be guaranteed for them and an option of professional postgraduate study will be available to them. The potential influences of these benefits, as implied by some people, could be that they attract individuals into teacher education programmes who mainly emphasise extrinsic rewards provided by the funding policy and do not study hard in these programmes.

Other researchers, however, hold an opposite opinion about this issue. Their findings show that those who have a deep interest in teaching are going to choose these teacher-training

programmes (Wang, 2011), and they study hard (Zhao, 2013) once being accepted because they know in advance that they are bound to be a teacher for a long time. As stated in stipulations of the funding policy, graduates of the policy-funded students are required for teaching services for a minimum of ten years, including two-year teaching in a rural-area school. Breaching this educational service contract will result in a refund of all higher education payments and a high amount of fines. These restrictive terms could limit the choice of the government-funded teacher-training programmes to those who have a strong personal interest in completing the long-time teaching services because "if they break their promise it will be very costly for them" (Li et al., 2013, p. 57). Moreover, in order to successfully complete the ten-year teaching services, those students with high intrinsic motivation to teach will try their best to master teaching skills by hard work during teacher education.

These seemingly contradictory views on career-choice motivation and study engagement of the policy-funded pre-service teachers (PFPTs) need to be further explored and tested through scientific research designs. As the existing literature suggests that pre-service teachers' motivation to teach could be related to outcomes of teacher education (König & Rothland, 2012), commitment to teaching profession (e.g., Serow, 1994; Wang & Fwu, 2001), engagement in teaching profession (e.g., Fokkens-Bruinsma & Canrinus, 2014; Wong, Tang, & Cheng, 2014), and teacher retention (e.g., Ding & Sun, 2007; Lin, Shi, Wang, Zhang, & Liu, 2012; Richardson & Watt, 2010), results from exploring the policy funded pre-service teachers' career-choice motivation could provide important information for policy makers and teacher educators to assess whether the funding policy is on the right track towards its initial target – to develop a stable teaching force especially for poor rural areas. Moreover, as study engagement is commonly found to be related to students' study success and academic achievement by existing literature (e.g., Bakker, Sanz Vergel, & Kuntze, 2015; Schaufeli, Martínez, Pinto, Salanova, & Bakker, 2002), findings from examining pre-service teachers study engagement in the government-funded teacher-training programmes could indicate the quality of these prospective teachers, which is also related with the purposes of the funding policy – to build a high quality teaching force for the country.

1.4 Definition of Key Terms

For some terms applied in the present study, no commonly adopted definitions were found in the existing literature. To avoid blurring the boundary, this study defines the meanings of several important terms as follows.

(i) Career-Choice Motivation of Pre-service Teachers: Pre-service teachers' reasons for choosing teaching as a career, including the following six types of motivation to teach which were identified in Chinese context (see section 4.3 in Chapter 4) and discussed in detail (see section 6.3 in Chapter 6) by the current study.

* Personal Utility Value (Extrinsic Motivation/Job Advantages): Advantages of teaching as a career for teachers which are not inherent in the work itself, such as lengthy holidays, reliable income, teaching hours, job security and steady career path, that attract pre-service teachers to choose teaching as their future career.

* Intrinsic Career Value (Intrinsic Motivation/Personal Interest): Personal interest of pre-service teachers in teaching children at school, such as long-lasting desire to teach and enjoyment of working with children, that motivates pre-service teachers to choose teaching as their future career.

* Social Utility Value (Altruistic Motivation/Social Value): Social value of teaching as a career, such as building children's characters, diminishing social disadvantages, and making contributions to social development, that stimulates pre-service teachers to choose teaching as their future career.

* Prior Teaching and Learning (Teacher Influence): Previous school teachers' positive influence on pre-service teachers' choice of teaching career.

* Social Influences (Others' Suggestion): Suggestions from important others, such as friends, classmates, and family members, which promote pre-service teachers' choice of teaching career.

* Fallback Career: Teaching as pre-service teachers' last-resort career because of limitations or difficulties on their choice of other careers.

(ii) Study Engagement of Pre-service Teachers: Pre-service teachers' persistence and enthusiasm on studying teacher training programmes at a university. The two dimensions of study engagement found in the current study are defined as:

* Persistence of study engagement: Keeping on studying for a long period of time.

* Enthusiasm of study engagement: Feeling passionate when studying.

1.5 Theoretical Frameworks

As Graham and Weiner (2012) summarise, there are many theories explaining motivation and engagement. The current study draws on the expectancy-value model and the undermining effect of extrinsic reward theory. Brief introductions and rationales for applying each of them are as follows.

1.5.1 The Expectancy-Value Model

The expectancy-value theory has been widely applied in research work on psychology, particularly on the development of achievement motivation. Based on earlier works, the modern expectancy-value theories define the expectancy and value constructs in richer ways by connecting them with the wider social, cultural, and contextual factors, and examining them in real world situations instead of laboratory (Wigfield & Cambria, 2010). Among them, the modern expectancy-value theoretical model developed by Eccles and her colleagues is assumed to be related to research questions proposed in the present study.

The expectancy-value model (e.g., Eccles, 1987, 2009; Eccles & Wigfield, 1995; Meece, Wigfield, & Eccles, 1990; Wigfield, 1994; Wigfield & Cambria, 2010; Wigfield & Eccles, 2000) proposes that educational, vocational, and other achievement-related choices are directly impacted by one's abilities, beliefs, and expectancies for success on the one hand, and the value one attaches to the task on the other (Richardson & Watt, 2014). It is further hypothesised that "expectancy" and "value" are the most immediate or direct predictors of individuals' performance and choices among various educational, professional, and other achievement-related tasks, and the two constructs themselves are influenced by various social, psychological, cultural, and contextual factors.

Definitions of the two key constructs are clearly described in this model. "Expectations for success" refers to individuals' beliefs about how well they will do on an upcoming task currently or further into the future. It is conceptually distinguished from individuals' beliefs about competence and ability which assess one's current ability and how individuals think they compared to others. The other construct of value has both broad and task-specific definitions, and the current study adopts the specific one. "Task-specific value" in the model means the qualities of different tasks and how those qualities influence the individual's desire to do the task. Values are subjective because they are individuals' own beliefs about an activity. There are four basic components defined in the achievement task values (Eccles,

2005; Eccles et al., 1983; Wigfield & Eccles, 1992). “Intrinsic value (interest)” is the pleasure one gains from completing a specific task; “utility value” refers to the usefulness of the task for an individual’s future development; “attainment value (importance)” means the significance one perceives for successfully completing the task; and “cost” is defined as what the individual has to give up to do a task, and the anticipated effort one will need to put into task completion.

The relationships among these constructs and factors (see Figure 2) have been gradually developed by Eccles and her colleagues (e.g., Eccles, 1987, 2009; Eccles & Wigfield, 1995; Meece et al., 1990; Wigfield & Eccles, 2000) and comprehensively reviewed by Wigfield and Cambria (2010). The model demonstrates four layers of factors that could influence individuals’ choices and performance. From right to left in Figure 2, it proposes that individuals’ expectancies for success and subjective task value directly impact their achievement-related choices and performance. Their expectancy and value, in turn, are influenced by individuals’ perceptions of the difficulty of different tasks and personal ability, personal goals, self-schemata, and affective memories for past events. These beliefs, goals, and affective memories are influenced by factors in the third layer, such as individuals’ perceptions of others’ attitudes and expectations for them, and individuals’ interpretation of outcomes of previous actions. Both perceptions and interpretations of individuals are influenced by a series of social, cultural, and contextual factors existing in the society where individuals are living, such as socializers’ beliefs and behaviours, children’s achievement-related experiences and aptitudes, and the deep-rooted cultural milieu.

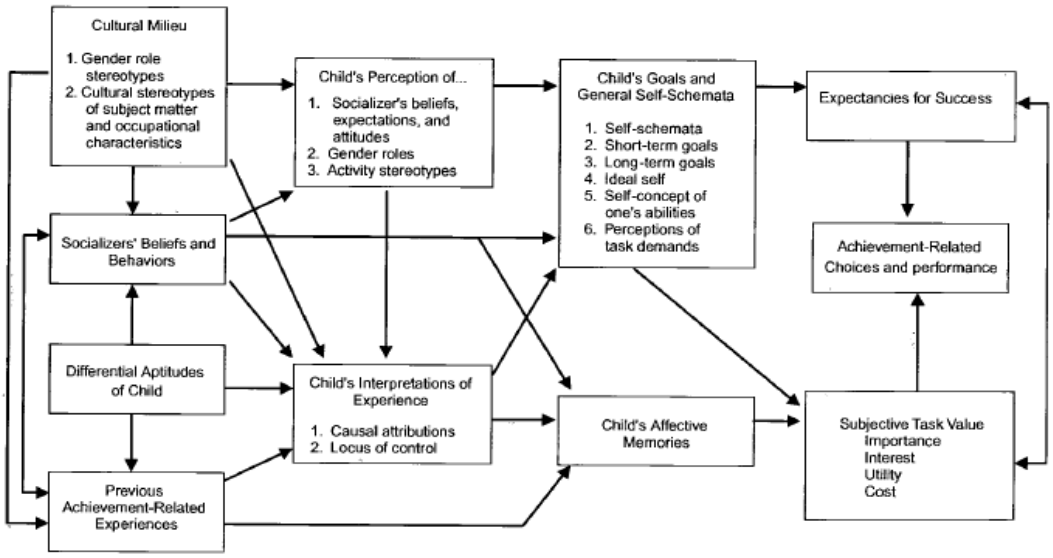

Figure 2: Expectancy-Value Model of Performance and Choice (e.g., Eccles, 2009; Wigfield & Eccles, 2000)

The present study applies the expectancy-value model as the theoretical foundation to understand the potential impacts of the Government-Funded Teacher Education Policy (GFTEP) on Chinese pre-service teachers' career-choice motivation and study engagement for two reasons. Firstly, the two variables – career-choice motivation and study engagement – in the present study seem to fall within the domain of achievement-related choices and performance. Motivation was defined as a process initiating and sustaining a goal-oriented activity (Schunk, Pintrich, & Meece, 2007). According to this definition, motivation could predict whether a person would start an action and persist in it, and to what degree that person would engage in it (Wong et al., 2014). Therefore, pre-service teachers' motivation to choose teaching as a profession belongs to their achievement-related choices, and their engagement in teacher-training programmes represents their major performance during teacher preparation.

Secondly, playing opposite roles, the encouraging and the restrictive terms in the funding policy (GFTEP) could influence pre-service teachers' expectancies for success and task-specific value in different ways. Most of the policy terms which encourage students to choose the policy-funded teacher education programmes, such as "students are fully funded during four-year teacher training" and "they are guaranteed for employment after graduation", could add additional task-specific values for individuals to become a teacher. However, pre-service teachers' expectancies for success could be damped due to the limitations exerted by the restrictive policy terms, such as "students have to teach for at least 10 years after graduation", "they have to teach in poor rural areas for at least two years", and "they are not allowed to become an academic postgraduate". Moreover, according to the expectancy-value theory, both expectancies for success and task-specific value of individuals can directly impact their achievement-related choices and performance. It is therefore theoretically assumed that the funding policy could potentially impact individuals' career-choice motivation and study engagement, but it is uncertain about the specific impacts the policy exerts.

1.5.2 The Undermining Effect of Extrinsic Reward Theory

The undermining effect of extrinsic reward theory, which is also referred to as "overjustification effect" in some studies (e.g., Akin-Little & Little, 2004; Bright & Penrod, 2009; Lepper, Greene, & Nisbett, 1973; Peters & Vollmer, 2014; Roane, Fisher, & McDonough, 2003; Tang & Hall, 1995), means that individuals lose their intrinsic motivation in a task when an extrinsic reward is offered to them for performing that task (Graham &

Weiner, 2012). Many studies (e.g., Cameron, Pierce, Banko, & Gear, 2005; Deci, Koestner, & Ryan, 1999a, 1999b; Hagger & Chatzisarantis, 2011; Murayama, Matsumoto, Matsumoto, Izuma, & Smith, 2010; Wiechman & Gurland, 2009) have explored the effect and tested different boundary conditions of the theory. After reviewing the existing literature, Graham and Weiner (2012) concluded that the undermining effect on intrinsic motivation is most notable when the rewards are "tangible as opposed to symbolic, expected rather than unexpected, not contingent rather than contingent on performance, and for tasks with initial high interest" (p. 377).

These conditions seem to be met by the encouraging terms of the Government-Funded Teacher Education Policy. According to the encouraging policy terms, if high school graduates choose the government-funded teacher-training programmes and if they are successfully accepted into one of these education programmes, they can receive various benefits including "no-fee university education", "guaranteed employment", "professional postgraduate study opportunity", and "availability of school management jobs". All these benefits could be seen as extrinsic rewards because they are beyond the gains from teaching profession itself, and they are tangible instead of symbolic because they are mainly about money, job opportunity, and further study opportunity. These extrinsic rewards, as stated in the official document, are expected by candidates who want to enrol in these teaching programmes. Once they are officially accepted into these programmes, they started to receive these rewards. Lastly, it is assumed that these high school graduates who choose teaching programmes should have initial interest in teaching profession. Therefore, according to the model, it is theoretically hypothesised that these encouraging terms in the funding policy could have an undermining effect on Chinese pre-service teachers' intrinsic motivation to choose teaching profession.

1.6 Overarching Research Question and Sub-questions

The purposes of the present research are to explore the impacts of the Government-Funded Teacher Education Policy (GFTEP) on Chinese pre-service teachers' career-choice motivation and study engagement in teacher-training programmes, and to present suggestions for improving the policy. The overarching research question of the study is:

> Does the Government-Funded Teacher Education Policy (GFTEP) impact career-choice motivation and study engagement of Chinese pre-service teachers, and how?

To unpack the overarching research question, nine quantitative sub-questions and two qualitative sub-questions are raised.

1.6.1 Quantitative Research Questions

The quantitative study divides Chinese pre-service teachers into two groups: those who are fully funded by the policy (the policy-funded pre-service teachers, PFPTs) and those who are self-funding (the self-sponsored pre-service teachers, SSPTs). The following quantitative research questions from (i) to (iii) focus on career-choice motivation and study engagement of Chinese pre-service teachers as a whole. The results of these research questions, especially the types of career-choice motivation and dimensions of study engagement, serve as the basis for analysing quantitative data for other research questions. The next three quantitative research questions from (iv) to (vi) concentrate on career-choice motivation and study engagement of the PFPTs. Through comparison between the PFPTs and the SSPTs in terms of career-choice motivation and study engagement, results of the quantitative question (vi), to a large degree, represent the impacts of the GFTEP. The other three quantitative research questions from (vii) to (ix) expand the variables by adding "perceptions about teaching" and "satisfaction with choice" as influential factors; however, they further narrow down the focus to PFPTs with different satisfaction levels towards the GFTEP. Research on these questions further analysed the impacts of the policy within the PFPT group and from a different perspective – the PFPTs' attitudes towards the policy. Answers to the quantitative question (ix) not only respond to the research purposes but also serve as a transition from the quantitative study to the qualitative research.

(i) What are the types of career-choice motivation of Chinese pre-service teachers, and what importance do they place on each type?

(ii) What are the dimensions of study engagement of Chinese pre-service teachers, and what is the strength of each dimension?

(iii) What is the relationship between career-choice motivation and study engagement of Chinese pre-service teachers?

(iv) Of the policy-funded pre-service teachers (PFPTs), how important is each type of career-choice motivation, and how does this change according to different demographic

variables, including gender, ethnicity, home region, family income, year of study, and the National College Entrance Examination scores?

(v) What is the strength of study engagement of the PFPTs, and how does this change according to different demographic variables, such as gender, ethnicity, home region, family income, year of study, and the National College Entrance Examination scores?

(vi) How do the PFPTs compare with the self-sponsored pre-service teachers in terms of career-choice motivation and study engagement?

(vii) What is the level of the PFPTs' satisfaction with different terms of the GFTEP?

(viii) What are the PFPTs' perceptions about teaching and how do they feel about their decision to become a teacher?

(ix) Are there any identifiable groups of PFPTs according to their satisfaction levels with different terms of the GFTEP? Given that the groups are identified, how do they differ in career-choice motivation, study engagement, perceptions about teaching, satisfaction levels with the choice of teaching, and demographic characteristics?

These research questions will give rise to further considerations of the ways in which the funding policy might be improved.

1.6.2 Qualitative Research Questions

Following the quantitative findings, the qualitative study mainly focuses on the policy-funded pre-service teachers (PFPTs) with different satisfaction levels towards the terms of the Government-Funded Teacher Education Policy (GFTEP). The PFPTs' responses to the following qualitative question (i) are expected to illustrate the deep and rich reasons for them to choose teaching as their future career. Findings from the following qualitative question (ii) are estimated to demonstrate reasons why the PFPTs with different satisfaction levels towards the GFTEP feel engaged or disengaged in teacher-training programmes.

(i) How do the PFPTs, with different policy satisfaction levels, explain their motivations for choosing teaching as their future career?

(ii) How do the PFPTs, with different policy satisfaction levels, explain their study engagement in the teacher-training programmes?

CHAPTER 2: LITERATURE REVIEW

Introduction

According to the research topic of present study, this chapter reviews literature related to three content areas: teachers' career-choice motivation, study engagement at university level, and research on the Government-Funded Teacher Education Policy (GFTEP) in mainland China. Within each content field, several issues are selected based on the research questions and the initial findings of the present study, and studies relevant to each issue are reviewed in details.

All the studies reviewed in this chapter are searched by Google, Google Scholar, the Library of University of Canterbury, and the China National Knowledge Infrastructure (CNKI) [4]. When searching for studies on career-choice motivation, study engagement, and the Government-Funded Teacher Education Policy, few studies have narrowed down their focus on pre-service teachers. Therefore, the review scope in this chapter is broadened to both pre-service and in-service teachers, to both teacher education and other higher education, and to studies related to the Government-Funded Teacher Education Policy. The following is a brief introduction of the main contents that will be covered in this literature review.

For the content area of teachers' career-choice motivation (see section 2.1.1 to section 2.1.6 of this chapter), this chapter will firstly review major research findings about career-choice motivations of teachers in different countries, and then will compare these findings to show their similarities and differences. As different criteria to classify teachers' career-choice motivations caused confusions in these studies, the second section of this chapter will summarise from existing studies two most frequently adopted classifications on career-choice motivations of teachers, and will review each of them in details. Next, the currently developed and validated FIT-Choice scale, which is applied in the present study to measure pre-service teachers' career-choice motivations, will be reviewed in order to better understand the context of this instrument. In the fourth section of this chapter, studies related to six major types of teachers' career-choice motivation will be reviewed. These six types of motivation are concluded from data analysis in the present study, and they are contained in the FIT-Choice scale. The fifth section will review some factors, such as gender, age, family

[4] More information about CNKI can be seen on http://online.ebiblioteka.ru/help/faq.htm, and its website is: http://www.cnki.net/

background, teacher education programme, teaching profession, and culture that were reported by previous studies to influence teachers' career-choice motivation. Lastly, implications of teachers' career-choice motivation suggested by researchers will be reviewed.

Study engagement of pre-service teachers in teacher-training programmes in the present study is defined as a kind of consequence from the psychological point of view (see definition of key terms in section 1.4 of Chapter 1 and reasons for adopting this perspective in section 2.2.1 of this chapter). Therefore, for the content area of study engagement in higher education (see section 2.2.1 to section 2.2.6 of this chapter), this chapter will firstly examine different research perspectives on study engagement. This will be followed by the review of a conceptual framework on study engagement proposed from the psychological research perspective. In the third section, the definition and dimensions of study engagement applied in the present study will be reviewed. According to the definition, the fourth section will review the development and validation of the UWES-S scale, which is adopted in the present study to measure pre-service teachers' study engagement. In the last two sections, factors that could influence study engagement and implications of study engagement will be reviewed respectively.

Studies related to the Government-Funded Teacher Education Policy (GFTEP) are mainly conducted in mainland China by now, and limited studies are related to the current research questions. Therefore, this chapter (see section 2.3.1 to 2.3.3) will firstly generally introduce the current research themes and trends on the Government-Funded Teacher Education Policy in mainland China. Then studies related to the policy-funded pre-service teachers' career-choice motivation and study engagement will be reviewed respectively in the next two sections.

2.1 Career-Choice Motivation of Teachers

Teachers' career-choice motivation has been explored in a large quantity of studies, and the number of studies in this field has increased in the last half century. For example, according to a comprehensive review of studies focusing on first-year pre-service teachers' characteristics from 1960 to 1990, there were only four studies published before 1970, but 44 studies afterwards (Brookhart & Freeman, 1992). Those studies were generally diversified in terms of research contexts and demographic backgrounds of participants.

Drawing on the research themes of existing studies and the research focus of the present study, the author is going to review these studies with the guidance of the following questions:

(i)What are the types and importance of career-choice motivations for teachers in different contexts?

(ii) How to classify teachers' career-choice motivation?

(iii) How to measure teachers' career-choice motivation?

(iv) What are the major types of teachers' career-choice motivation?

(v) Which factors influence teachers' career-choice motivation?

(vi) What are the implications of teachers' career-choice motivation?

2.1.1 Career-Choice Motivation Profiles of Teachers in Different Contexts

Teaching as a career in countries usually has significantly different rewards and demands. These differences, along with the diversity of employment situations, economy, society, culture, policies, and traditions in those countries, could shape teachers' career-choice motivation. This is echoed by findings of a comparative study, which tended to indicate that pre-service teachers from metropolitan areas emphasised altruistic and intrinsic motivations to teach, while those from low income countries emphasised extrinsic motivations to teach (Bastick, 2000). A later study also suggested that the differences in motivations to teach among pre-service teachers in different countries, to some extent, reflected the economic standing of the countries (Low, Lim, Ch'ng, & Goh, 2011). Many studies therefore explored the career-choice motivations of teachers in a specific country or area, and some studies compared teachers' career-choice motivation across different countries or districts.

2.1.1.1 Motivations to Teach in the USA

Studies on career-choice motivation of teachers in the USA have a long history and accumulate the following facts about what is American teachers' most important career-choice motivation.

An early study in the 1980s found that American high school students who aspired to teach were concerned less about earning a high salary than those who planned to do other jobs (Roberson, Keith, & Page, 1983). A later study conducted by Hayes (1990) found that among a variety of motivations for American university students to choose teaching as their future profession, altruistic reasons like having a positive influence on the development of children, the love of children, and the opportunity to demonstrate their creativity were most significant, while extrinsic benefits like long holidays and salary were denied by most of them as attractive factors. Based on the data from a national research project, a qualitative study conducted by Su (1993) on American teacher candidates' reasons for entering teaching showed that they chose teaching because they liked children and the youth, enjoyed working with people, wanted to serve others, had interests in the subject area, and needed the compatibility between teaching and family life. Similarly, another study (DeCorse & Vogtle, 1997) showed that the most important reason for American males to choose elementary teaching was the desire to work with children. Moreover, a study on American school students with interests in teaching (Summerhill, Matranga, Peltier, & Hill, 1998) listed their top three motives as: knowledge and skills on the subject they would teach, desire to work with young people, and interests in the chosen subject, and listed salary, job availability, and reputation as their last three.

In a systematic review of studies published from 2002 to 2006 on recruitment and retention of teachers in America, Bielby et al. (2007) concluded that, similar to findings of previous review on research from 1986 to 2001, evidence generally suggested that pre-service teachers were more motivated to teach by intrinsic reasons such as "helping children and young people" than extrinsic factors such as "job security or pay" (p. 4). Moreover, the two most commonly cited reasons for wanting to teach in America were "wanting to work with children" and "having a high regard for the teaching profession" (Bielby et al., 2007, p. 4).

2.1.1.2 Motivations to Teach in Other Advanced Economies

According to the literature consulted, a series of studies explored career-choice motivation of teachers in other advanced economies[5], such as Australia (Richardson & Watt, 2006; Sinclair, 2008), New Zealand (Lovett, 2007), the UK (Ivan & Jonathan, 1997), Ireland (Heinz, 2013;

[5] These countries are considered "advanced economies" according to the International Monetary Fund's (IMF) World Economic Outlook Report, October 2015, p148: http://www.imf.org/external/pubs/ft/weo/2015/02/pdf/statapp.pdf

Moran, Kilpatrick, Abbott, Dallat, & McClune, 2001), Netherland (Fokkens-Bruinsma & Canrinus, 2012, 2014), Germany (König & Rothland, 2012), Greece (Doliopoulou, 1995), and Singapore (Goh & Atputhasamy, 2001; Low et al., 2011). The following is a brief review on each of them.

In Australia, Richardson and Watt (2006) applied their currently developed and validated scale into pre-service teachers in three universities and found that the highest ranking motivations to teach were: perceived competency in teaching, intrinsic value of teaching, and working with children; meanwhile, choosing teaching as a fallback career and following others' suggestion were ranked as the least important motivation to teach. Another study (Sinclair, 2008) on Australian first-year pre-service teachers showed that their motivations to become a primary teacher were multifaceted. The most important reasons for choosing teaching were their self-evaluation about their characteristics and abilities suitable for teaching, loving working with children, and the intellectual challenge of teaching.

A qualitative study conducted by Lovett (2007) in the context of New Zealand suggested that the motivational factors, such as working with children and making a difference in children's development, dominated promising teachers' reasons for choosing teaching as a career. In terms of career pathways, the study revealed no appreciable difference in career-choice motivation between the first-career teachers and the career-changers (Lovett, 2007).

In the United Kingdom, an early study found that 96% of the pre-service teachers were motivated to enter the Postgraduate Certificate in Education mainly by intrinsic and altruistic factors such as enjoying working with the youth and the high job satisfaction of teaching (Ivan & Jonathan, 1997).

In the study on why teaching was chosen as a career in Northern Ireland, Moran et al. (2001) found that the teacher candidates selected teaching mainly because of intrinsic reasons although there were extrinsic motives too. A later study (Heinz, 2013) found that Irish pre-service teachers chose teaching with high altruistic incentives (such as making social contribution, shaping the future generation, and commitment to teaching) which were balanced by realistic perspectives (such as high difficulty of teaching profession and relatively low social status and salary for teachers).

In the context of the Netherlands, studies applying the FIT-Choice scale found that the intrinsic motivations, such as self-perceived teaching abilities (Fokkens-Bruinsma &

Canrinus, 2012) and working with children and adolescents (Fokkens-Bruinsma & Canrinus, 2014) were rated as the most important reasons for Dutch pre-service teachers to choose teaching, whereas social influences and perceiving teaching as a personal useful career were reported as the least important two teaching motivations by all participants (Fokkens-Bruinsma & Canrinus, 2012).

The typical motivational characteristics of pre-service teachers in Germany were replicated in an empirical study conducted by König and Rothland (2012). The results showed that working with children was rated as the most important teaching motivation, which was followed by other motivational factors such as intrinsic value of teaching, shaping future, perceived teaching competency, and contributing to society.

The study by Doliopoulou (1995) in Greece showed that kindergarten teacher candidates, most of whom were female, chose teaching basically because they loved working with children.

In Singapore, the research findings of Goh and Atputhasamy (2001) showed that the most popular motives for pre-service teachers in that country to choose teaching as their future career were: fondness of teaching and working with children, ability to positively influence others' lives, and teaching as an intellectually stimulating and noble job, all of which were altruistic in nature. In the study of Low et al. (2011), nine themes on reasons for pre-service teachers to choose teaching were identified; they were then categorised into the three broad clusters of altruistic, intrinsic, and extrinsic factors with examples of statements. The study further showed that altruistic and intrinsic categories, which accounted for 96% of the sample, were the main reasons for Singaporean pre-service teachers to choose teaching(Low et al., 2011). Moreover, a series of early studies in Singapore (e.g., Lau, 1968; Soh, 1981; Soh, 1989) reached the similar finding that the predominant factors motivating student teachers to enter teaching profession were intrinsic and altruistic, such as serving the society, developing the young, and fondness for children.

2.1.1.3 Motivations to Teach in Developing Economies

A comparatively small number of studies on career-choice motivation of teachers have been conducted in some developing economies[6], such as Nigeria (Adkintomide & Oluwatosin, 2011; Olaseboye Olasehinde, 1972), Zimbabwe (Chivore, 1988), Jamaica (Bastick, 2000; Evans, 1993), Brunei Darussalam (Yong, 1995), and Turkey (Akar, 2012; Topkaya & Uztosun, 2012). Findings about the most significant reasons for teachers to choose teaching in each of these countries are briefly reviewed as follows.

The study conducted by Olaseboye Olasehinde (1972) in Nigeria found that "nothing else to do" was the second most important motive for primary teachers' career choice (p. 209). In another study (Adkintomide & Oluwatosin, 2011), teaching quality, dressing style, and communicating capability of teachers were found to be the most influential motivations for Nigerian senior secondary school students to choose teaching.

In Zimbabwe, factors relating to salary, fringe benefits, and working conditions were considered to have the greatest influence on the attractiveness of a teaching career for pre-service teachers (Chivore, 1988).

In the context of Jamaica, Evans (1993) found that 55% of interviewees (newly graduated teacher trainees) were forced into teacher-training colleges by their personal circumstances, such as blocked aspiration and easy entry to teacher college. Another study (Bastick, 2000) concluded that extrinsic motivations, such as many holidays, cheap college fees, time compatibility, opportunity to be a manager, job stability, good salary, and high social status, were most important for Jamaican teacher candidates to choose teaching as a career.

The study (Yong, 1995) in Brunei Darussalam found that extrinsic factors such as "no other choice" and "influence of others" were the most important two reasons for teacher trainees in that country to choose teaching as a career (p. 276).

In Turkey, one study (Akar, 2012) using quantitative methods identified personal and social utility value and previous educational experiences as the major motivation factors. Similarly, findings from another study (Topkaya & Uztosun, 2012) in the same year revealed that social

[6] These countries are considered "developing economies" according to the International Monetary Fund's (IMF) World Economic Outlook Report, October 2015, pp149 - 151: http://www.imf.org/external/pubs/ft/weo/2015/02/pdf/statapp.pdf

utility, intrinsic value, and ability related beliefs were the top three motivational factors for Turkish pre-service English teachers to choose teaching as their future career.

2.1.1.4 Comparisons on Motivation to Teach between Different International Contexts

Comparing the above-listed research findings revealed dissimilarity between advanced and developing countries in terms of the most important teaching career choice motivations. In the contexts of advanced economies, studies tended to reach a similar conclusion that teachers' motivations to teach were mainly altruistic and intrinsic rather than extrinsic. However, studies in the context of developing economies, in spite of accounting for a relatively smaller proportion in this research field, generally showed a different scenario: the most important career-choice motivation of teachers in less developed countries was more likely to be extrinsic benefits instead of altruistic or intrinsic stimuli.

This dissimilarity was echoed in findings from some comparative studies across different countries too. For example, an early comparative study between pre-service teachers from America and Cyprus (Papanastasiou & Papanastasiou, 1997) showed that pre-service teachers from Cyprus (University of Cyprus) were highly motivated by extrinsic factors, such as "variety of benefits" and the "status of the profession" (p. 305), to enter initial teacher preparation programmes; however, the strongest factor that influenced their counterparts from the United States (Pennsylvania State University) to enter the same programmes was intrinsic motives. In a later study based on analyses of previous research findings and results from empirical study on teacher trainees in Jamaica, Bastick (2000) concluded that teacher students from developing countries generally emphasised extrinsic motivations, while those from metropolitan countries emphasised intrinsic and altruistic motivations. The researcher (Bastick, 2000) briefly explained the finding by applying Maslow's theory of motivation (Maslow, 1970).

Overall, findings from previous studies seem to suggest that teachers in high-income or developed countries tend to choose teaching for intrinsic and altruistic reasons; while those from low-income or developing countries are more likely to choose teaching for extrinsic motives. This difference seems to support the idea that teachers' career-choice motivation could be shaped by different socio-cultural contexts (e.g., Bastick, 2000; Richardson & Watt, 2010). However, findings of these studies are noticeably culturally specific to western and

non-Chinese societies. Their applications to societies heavily influenced by Chinese cultures are still open for question. The following sections, therefore, are going to review studies on teaching career choice motivation conducted in Chinese societies or related to Chinese culture.

2.1.1.5 Motivations to Teach in Mainland China

Career-choice motivations of teachers in Chinese contexts usually showed "complex and nested" motives for Chinese teachers to choose teaching (Gu & Lai, 2012, pp. 47-48). In a large-scale national study on Chinese teacher motivation, Su, Hawkins, Huang, and Zhao (2001) carried out questionnaire surveys among around 2,000 pre-service teachers and 400 teacher educators from 23 teacher-training institutions in mainland China, interviewed over 100 pre-service teachers and about 100 teacher educators and educational leaders, observed some participants, and analysed relevant documents. The results showed that teaching was not rated as one of the most lucrative and popular professions by young Chinese participants. Low social status, hard work, and low salary were found in the study (Su et al., 2001) as the three most significant reasons for Chinese pre-service teachers to dislike teaching career in mainland China. Moreover, Chinese pre-service teachers participated in the study commonly complained about the slowly increased salary for teachers in the context of high inflation rate and low availability of school housing, which revealed the still fall-behind social and economic status of teaching (Su et al., 2001).

In a later study through analysing autobiographical writings and in-depth interviews of four experienced or retired mainland Chinese teachers, Li and Niyozov (2008) found that their career choice appeared to be severely impacted and intervened by the reversing educational policy and the turbulent Chinese society during the last decades of the 20th century, and Chinese teachers' professional identity was constantly shaped and reshaped by the social realities/social forces and their reactions to those realities. These social realties included the Culture Revolution (1966-1976), the Reform and Open-Door Policy (1978), and the changing foreign language education policy since 1949. Very limited autonomy was found for Chinese teachers' professional choice at that time when "it was the state's preference, rather than personal and professional needs that determined what one would do" (Li & Niyozov, 2008, p. 78). Taking foreign language teachers for example, instead of resisting actively, they tended

to “reconstruct themselves to meet the changing foreign language teaching policies in China” (Li & Niyozov, 2008, p. 77) following the Chinese Taoist principle.

A couple of studies explored why mainland Chinese teachers chose to teach English (e.g., Gao & Trent, 2009; Zhao, 2008). In the study (Zhao, 2008) applying the life-history narrative approach to explore 17 Chinese teachers’ motivation to teach English in secondary schools in mainland China, four themes about their career-choice motivation were found: entering teaching profession without making a conscious decision, enjoying teaching the subject of English, the sense of security provided by teaching job, and wanting to influence people. However, the location of teacher-training programmes seems to influence their career-choice motivation too. None of these themes were found in another qualitative study (Gao & Trent, 2009) which examined the experiences of ten mainland Chinese pre-service English teachers at a teacher education programme in Hong Kong. The results revealed that their motivations to enrol in English teacher education programmes in Hong Kong were mainly extrinsic benefits, such as teaching job security, prestige of teaching a foreign language, and acquiring transferable skills such as English proficiency (Gao & Trent, 2009). This finding was echoed by a later study where pre-service teachers from mainland China were found to regard the availability of English-learning circumstance and the opportunity of self-development in non-teaching occupations as important reasons for them to attend teacher-training institutions in Hong Kong (Gu & Lai, 2012).

Entry motivations to the newly launched government-funded teacher education programmes were examined by a later study applying parts of the FIT-Choice scale among 612 policy-funded pre-service teachers (Li et al., 2013). The results showed that four factors motivated Chinese policy-funded pre-service teachers to enrol in these teacher-training programmes: their perceptions about teaching profession; the attractive provisions in the Government-Funded Teacher Education Policy; intrinsic values of teaching; and social influences from teachers, parents, and friends (Li et al., 2013).

2.1.1.6 Motivations to Teach in Hong Kong

Several studies explored teaching career choice motivation in the context of Hong Kong. In an early study (Lai, Chan, Ko, & So, 2005), “altruistic-intrinsic”, “extrinsic”, and “(positively) influenced by others” (p. 160) were found to be the three types of motivation that attracted Hong Kong secondary school students to choose teaching as a career; moreover, “(negatively)

influenced by others", "unattractive occupational nature" and "negativity about working with young people" were found to deter them from becoming a teacher (p. 161). In another study through in-depth interviewing of 38 pre-service teachers in Hong Kong and analysing these data by using a grounded theory methods, Lam (2012) found two broad categories, "teaching as a safe haven" and "internal satisfaction", were the most important career-choice motivation for these pre-service teachers to choose teaching as their future career (p. 307). In a recent study in Hong Kong when teaching job market became stringent, researchers (Wong et al., 2014) found that altruistic and intrinsic motivations were the dominant forces which drew pre-service teachers who just completed a postgraduate diploma in education to the teaching career.

2.1.1.7 Comparisons on Motivation to Teach between Mainland China and Hong Kong

Similar intrinsic, altruistic, and extrinsic motives were found for Chinese pre-service teachers from mainland China and Hong Kong to enter the teacher education programme in Hong Kong (Gu & Lai, 2012). The intrinsic and altruistic motivations included love of children and shaping individual's lives through teaching; and the extrinsic reasons were mainly related to the advantages of teaching in Hong Kong, such as job security, lengthy holidays, decent salary, and relatively less competitive working environment. Moreover, both of them generally admitted that their low National College Entrance Examination scores precluded other choices for them (Gu & Lai, 2012).

However, two unique motives were also noted in the same study (Gu & Lai, 2012) for the mainland Chinese pre-service teachers. These motives were the English-speaking context in Hong Kong and personal development chances provided by teaching vocation, both of which were rated as main reasons for them to choose a teacher education programme in Hong Kong (Gu & Lai, 2012).

2.1.1.8 Comparisons on Motivation to Teach between Mainland China and the USA

Teachers from advanced and developing economies could have different reasons for choosing teaching as a future career as suggested by studies under different contexts (see section

2.1.1.1 to section 2.1.1.4 of this chapter). Career-choice motivations of teachers from mainland China and the USA, the currently representative developing and developed countries, were also compared by some studies (e.g., Lin et al., 2012; Liu, 2010; Su et al., 2001).

The earlier comparative study on pre-service teachers' choice and commitment to teaching between mainland China and the USA (Su et al., 2001) showed that both Chinese and American pre-service teachers generally emphasised intrinsic reasons more than extrinsic reasons for choosing teaching as their future job. Moreover, approximately half of the interviewees in the study reported that they loved and respected teaching profession, got positive experiences from previous teachers, and received encouragement from their parents who were teachers, all of which were the reasons for them to become a teacher (Su et al., 2001). However, Su et al. (2001) also found several unique features of Chinese pre-service teachers' motivations. When compared with their American counterparts, the Chinese pre-service teachers rated intrinsic reasons at a lower scale and rated the extrinsic reasons at a higher scale. Moreover, mainly due to the low social status and poor benefits of teaching in China, most of Chinese pre-service teachers did not intend to stay life-long in teaching profession although they regarded teaching as a noble career similar to what their American counterparts did (Su et al., 2001).

In another comparative study (Liu, 2010), the researcher found that Chinese and American pre-service teachers shared similar views on the role of teachers, but the two groups had noteworthy differences in their motivations to teach and in their perceived accomplishments as a future teacher. The informants in the study included 35 Chinese pre-service teachers in an elementary teacher-training programme at a university in China, and 31 American counterparts in multiple subject credential programmes at a university in USA. By analysing their written responses on motivation to teach, Liu (2010) found that the most popular reasons for Chinese pre-service teachers to choose teaching as a future career were: security and nobility of teaching, scores in the university entrance exams, desire and chance to educate the future generation, and long breaks brought about by teaching job. This indicated that the Chinese pre-service teachers were not driven by their intrinsic motivation to choose teaching as a future career, instead, a large number of them were pushed or attracted by many extrinsic factors to enrol in teacher-training programmes, such as lower scores in university entrance exams, responsibility to serve the society, social status of teachers, tuition waiver in teacher-training programmes and other advantages of teaching (Liu, 2010). In comparison,

the most popular motivations for American pre-service teachers to choose teaching were: making a difference, personal interest and passion, previous teachers' influence, intrinsic rewarding, and love to work with children (Liu, 2010). The study concluded that while the American pre-service teachers were attracted to teaching profession mainly by their passion for teaching and working with children, their Chinese counterparts were more motivated by extrinsic factors (Liu, 2010). Lastly, it suggested that these differences could be ascribed to the admission system to teacher-training programmes, the career-consulting courses at school, and the social status of teachers in the two countries (Liu, 2010).

A later comparative study (Lin et al., 2012) applied the currently developed FIT-Choice scale by Watt and Richardson (2007), and found that Chinese and American pre-service teachers had both similarities and differences in terms of their career-choice motivation and perceptions about teaching. Both of the two cohorts of pre-service teachers emphasised social values of teaching and perceived teaching as a profession with low social status. However, when compared with the American cohorts, the Chinese counterparts were less motivated to become teachers by social values of teaching, personal teaching capacity, personal interests in teaching, and previous educating experience, but more motivated by fallback factors, such as unsure of career goals, being refused to their first-choice career, and choosing teaching as a last-resort career. Moreover, Chinese pre-service teachers regarded teaching as a less demanding career and they were less satisfied with their choice of teaching than their American counterparts (Lin et al., 2012).

2.1.2 Classifications of Teachers' Career-Choice Motivations

The behaviours of human beings are believed to be "over-determined" by numerous factors (Wong et al., 2014, p. 89). The actions people take, including making a choice, are usually motivated by not just one factor but multiple concerns. While numerous studies of teachers' career-choice motivations had conducted to gain individual fact-based results about what are their motivations in different contexts, some focus on conceptually analysing these diversified motivations (Ferrell & Daniel, 1993). According to the literature consulted in this study, two frameworks on classifying teaching career choice motivations are concluded and reviewed in the following sections.

The two classifications on career-choice motivations of teachers are considered as equally significant and largely compatible by the present study, and hence they will be applied to

facilitate interpretation of the relationship between the six types of career-choice motivations of Chinese pre-service teachers concluded from this study (see section 6.3.2 in Chapter 6).

2.1.2.1 Classification One: Attractors and Facilitators

This classification is concluded from an early study conducted by Lortie (1975) who made a major effort to build a conceptual framework to explain why people enter teaching. Data in Lortie's study was mainly collected from intensive interviews with in-service teachers in five towns in the Boston metropolitan area ranged from the early 1960s to the early 1970s. Additionally, the study also consulted the data gathered by the national surveys by the National Education Association (cf., Lortie, 1975, pp. 26-27). Through comprehensive data analyses, domains and subgroup themes had been drawn. Findings of this seminal study were published in the book called 'Schoolteacher' by Lortie (1975). According to the second chapter of the book (Lortie, 1975, pp. 25-54), a comparatively early classification of teachers' career-choice motivations is summarised and adapted in Figure 3.

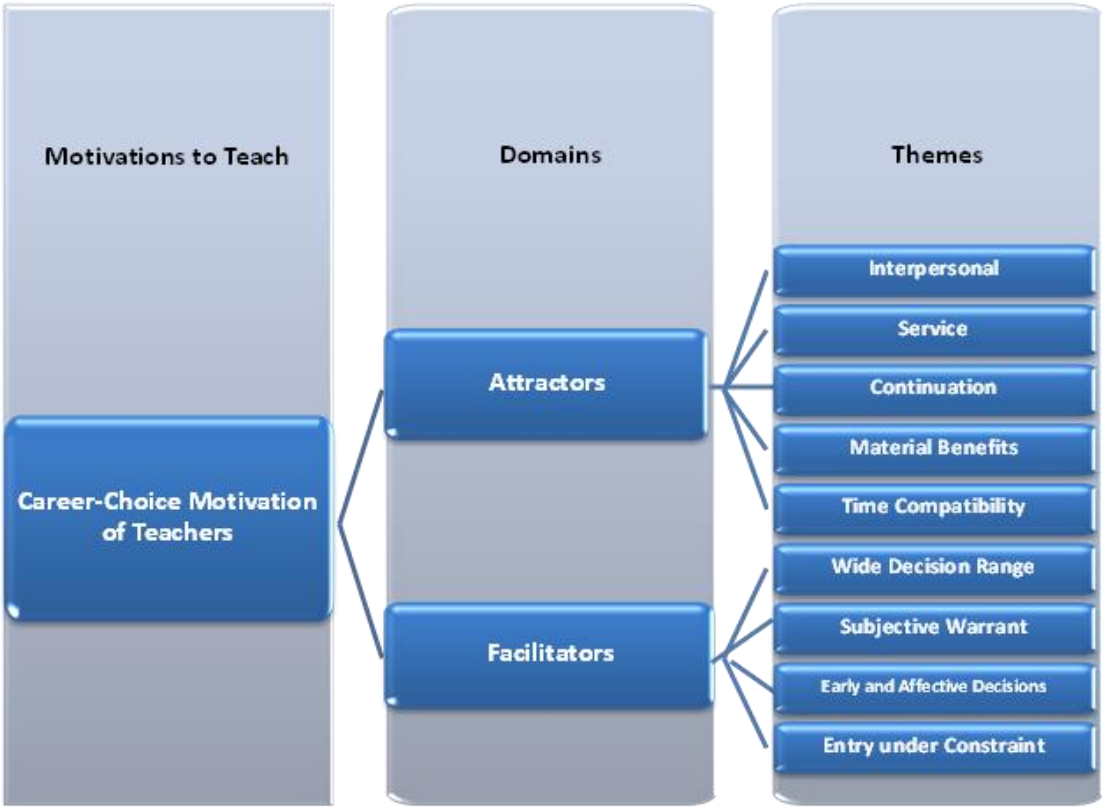

Figure 3: Attractors and Facilitators of Teaching Career (Adapted from Lortie, 1975)

The motivational factors for choosing teaching as a career (see Figure 3) are categorised into two broad domains, which are designated "attractors" and "facilitators". The attractors mean

various comparative advantages people can gain if they choose teaching as a career; while the facilitators refer to the less noticeable social mechanisms which propel individuals into teaching. Within each domain, there are several themes which are introduced as follows.

In the framework (see Figure 3), there are five themes for the domain of "attractors" of teaching career: interpersonal, service, continuation, material benefits, and time compatibility. The first theme "interpersonal" means teaching provides an opportunity for working with the young. When compared with other occupations, one of the unique features of a teaching career described by Lortie (1975) is that "it calls for protracted contact with young people" (p. 27). For those who are keen to work with children and have the desire to keep steady interaction with them, they could be attracted to a teaching career for these "interpersonal" reasons. The second theme is called "service", which suggests that a teaching career provides a chance for performing a valuable service to the youth. In the contexts where culture (e.g., American culture) respects those who fulfil a special and sacred mission for the society, a teaching career can be more attractive than other occupations. The third theme "continuation" implies that teaching career is attractive for students who have a strong desire to stay in school settings after they graduate, and for teachers who have passion for teaching a specific subject. These students and teachers like school environments and they feel it is difficult to engage in other contexts. The "school-linked pursuits" (Lortie, 1975, p. 29) attract them to continue working in schools. The fourth theme is "material benefits" which means the rewards of teaching, such as money income, prestige, and employment security, attract people to a teaching career. The last theme – "time compatibility" – refers to the flexibility of working schedules of teachers which can be compatible with their family life. This feature of teaching plays the role of attracting people into the profession too.

Four themes[7] are categorised into the domain of "facilitators" (see Figure 3). The first theme "wide decision range" means that people can make a decision to become a teacher at a number of points in their life, which could facilitate expanding the poll of potential teaching force. The second theme is called "subjective warrant". It refers to individuals' justifications on the choice of teaching based on self-judgement on their personality, interest, capability, etc. The next theme "early and affective decisions" denotes the choice of a teaching career at an early age due to identification with appropriate teacher models and/or reinforcement by supportive environment. This frequently happens to "marginal students" (Lortie, 1975, p. 43)

[7] According to Lortie (1975), the first two themes are called "general facilitators" and the last two are called "specific circumstances and special facilitators".

who are experiencing different cultures and can be easily influenced by teachers, and to family members who follow the teaching occupation of their parents or other kin. It can also happen when individuals are labelled by their significant others, such as parents, friends, and colleagues. Lastly, the theme of "entry under constraint" means that teaching is chosen as a career as a result of some outside restrictions. These restrictions include socioeconomic limitations, unavailability of expensive college education, parental interventions on obedient children, obstacles on original ambition and convertibility, and disadvantages of previous careers.

Lortie's (1975) classification on motivations to choose teaching as a career has inspired further discussions in many studies (e.g., Ferrell & Daniel, 1993; Joseph & Green, 1986; Low et al., 2011; Wang & Fwu, 2001). In the study conducted by Joseph and Green (1986), additional motivational factors such as "stimulation", "influence of others" and "psychological" themes (p. 29) were attached to Lortie's framework. In another study, the researchers statistically tested and refined Lortie's framework (Ferrell & Daniel, 1993). In the study conducted by Wang and Fwu (2001), two perspectives were suggested for analysing teaching career-choice motivations. One was the job-related factors such as the nature and the conditions of teaching, which played the role of active attraction. The other one was the external forces that promoted the process of selecting teaching as a career. According to Lortie's teaching motivation framework, the study (Wang & Fwu, 2001) applied "attractors" and "facilitators", together with "exploration", "parenting", and "knowledge", as the five criteria for categorising codes on teaching motivations.

2.1.2.2 Classification Two: Intrinsic, Extrinsic, and Altruistic Motivations

Following the classical study of Lortie (1975), many researchers explored the career-choice motivations of teachers in different contexts by applying empirical approaches (see section 2.1.1 of this chapter). The motives to become a teacher are various and complicated, and researchers focusing on a particular group of participants usually categorise the motives into different types. However, increasing studies indicate that several major types of motivation dominate over teachers' career-choice motivations in spite of the diversified contexts.

According to an earlier literature review (Brookhart & Freeman, 1992), "altruistic, service-oriented goals, and other intrinsic sources of motivation" were frequently cited as the major

reasons for pre-service teachers to choose a teaching career (p. 46). Based on empirical results, a later study conducted by Moran et al. (2001) classified the motivational factors into two groups – intrinsic reasons and extrinsic reasons. This was in consonance with the suggestion from Wang and Fwu (2001) that people were generally attracted to the teaching profession by two factors: one was closely associated with the nature and conditions surrounding the job (intrinsic factors), and the other was the external forces that push one to choose teaching as a career (extrinsic factors). However, according to the literature consulted by this study, after the work of Lortie (1975), the classification of "extrinsic, intrinsic, and altruistic" motivations to choose a teaching career (see Figure 4) has been widely adopted in many studies (e.g., Chan, 2006; Kyriacou, Hultgren, & Stephens, 1999; Low et al., 2011; Roness, 2011; Sinclair, Dowson, & McInerney, 2006; Thomson, Turner, & Nietfeld, 2012; Topkaya & Uztosun, 2012; Williams & Forgasz, 2009; Younger, Brindley, Pedder, & Hagger, 2004).

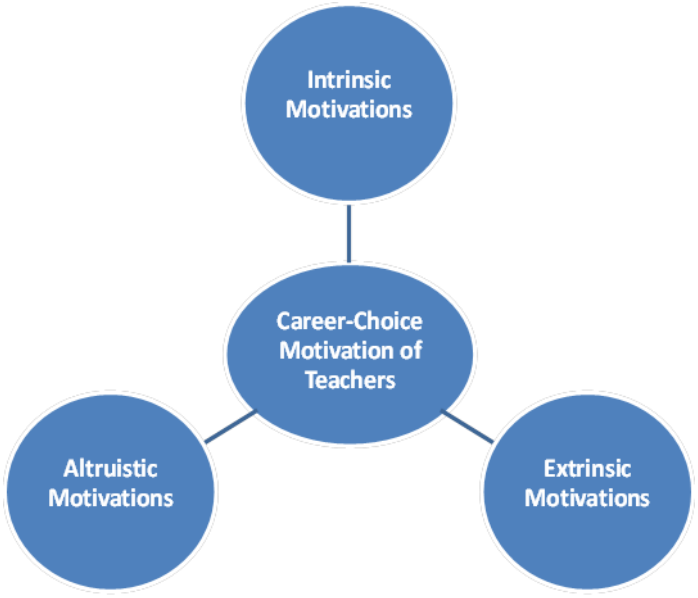

Figure 4: Extrinsic, Intrinsic, and Altruistic Motivations to Choose Teaching

In the "extrinsic, intrinsic, and altruistic" career-choice motivation model, which was called the "EIA" factor model by Bastick (2000), the three motivational categories are different in nature and exerting influences together on the choice of teaching (see Figure 4). Although this classification is shared by many studies, it seems that no agreement has been reached on what factors each of the three motivational categories exactly contain. As indicated by some studies (e.g., Brookhart & Freeman, 1992; Moran et al., 2001; Topkaya & Uztosun, 2012), intrinsic motives included personal interests, personal experience, and intellectual fulfilment;

altruistic motives referred to making contributions to society and helping children develop; and extrinsic motives included salary, lengthy holiday, job security, and time compatibility. However, helping children develop, for example, was counted as one of the intrinsic motives in some studies (e.g., Young, 1995). The confusion is partly caused by blurring definitions on the three motivational categories. Therefore, the following section is going to introduce a descriptive definition on each motivational category within this classification which will be applied for interpreting research findings in the present study.

The descriptive definitions for extrinsic, intrinsic, and altruistic teaching career choice motivations in this classifacation (see Figure 4) have been systematically examined and repetitively emphasised by Kyriacou and his collegues in a series of studies published from the late 1990s to the early 2000s (Kobori & Kyriacou, 1998; Kyriacou & Benmansour, 1999; Kyriacou & Coulthard, 2000; Kyriacou et al., 1999). As concluded by Kyriacou and Coulthard (2000), definitions for the three motivational categories could be described as follows.

(i) Altruistic motives deal with seeing teaching as a socially worthwhile and important job, a desire to help children succeed, and a desire to help society improve;
(ii) Intrinsic motives cover aspects of job activity itself, such as the activity of teaching children, and an interest in using their subject matter knowledge and expertise; and
(iii) Extrinsic motives cover aspects of the job which are not inherent in the work itself, such as long holidays, level of pay, and status (p. 117).

This definition is basically echoed in later studies. For example, based on a review of studies over sixty years, Moran et al. (2001) understood that extrinsic motivations were related to material benefits and job security, intrinsic motivations were linked with personal growth and school working environment, and altruistic motivations were in connection with love to work with young people and desire to serve society.

The classification of intrinsic, extrinsic and altruistic motivations to teach has been verified in the study conducted by Bastick (2000) in the context of Jamaica through factor analysis. However, different understandings can be seen in studies of the relationships between the three types of teaching career choice motivation. Early studies usually suggested adverse effects and incompatible relationships between different types of motivation, such as intrinsic versus extrinsic motivations (e.g., Deci & Ryan, 2000b). A later study (Covington & Müeller, 2001) suggested a bipolar or unidimensional model of motivation where extrinsic and

intrinsic motives blended within an individual who nevertheless could be dominated by one motivational factor. Similarly, Moran et al. (2001) emphasised that not all the three types of motivation were demonstrated by each individual when they were considering teaching as a career choice, and each type of motivation may be emphasised differently by different pre-service teachers and by female and male teacher candidates in general. In a study applying a typological approach to explore pre-service teachers' career-choice motivation, Thomson et al. (2012) found that the combination of different altruistic, intrinsic and extrinsic motivations was expressed by every participant to some degree, and none of them reported only one type of motivation. Additionally, through literature review, an interesting idea was proposed by Low et al. (2011) to combine the extrinsic, intrinsic, and altruistic motivational categories with Lortie's (1975) classification:

> "The diverse taxonomy of motivations, uncovered by numerous studies, dovetail with one another; the intrinsic, extrinsic and altruistic categories very much reflect the attractors, while personal influences that are featured in many articles resonate with the facilitators described by Lortie (1975)" (Low et al., 2011, p. 196).

Some of these understandings seem to be in line with research findings of the present study. They will be discussed in section 6.3 of Chapter 6.

2.1.3 Measurement: The Factors Influencing Teaching Choice (FIT-Choice) Scale

In the present study, the FIT-Choice scale is applied in the quantitative design to measure career-choice motivation of Chinese pre-service teachers (see section 3.3.1.1 in Chapter 3). To better understand the background information about this instrument, the following sections are going to review the FIT-Choice scale regarding its developing context, development, validation, content structure, application, and changes.

2.1.3.1 Rationale for Creating the FIT-Choice Scale

Prior to the FIT-Choice scale, different questionnaires to measure career-choice motivation of teachers were developed by many empirical studies based on the researchers' understanding of the classification on teaching motivations. As a result, it was difficult to compare their findings which were usually specific to the contexts where the survey was applied. These

were criticised by some researchers who argued that the scarcity of consistent criteria in classification of teacher motivations, and the lack of a theoretically grounded and commonly accepted survey instrument among many studies, made potentially significant comparisons across international settings and social-cultural contexts impossible (e.g., Richardson & Watt, 2010; Watt & Richardson, 2007). Therefore, a theoretically grounded scale was needed with acceptable reliability and validity to measure career-choice motivations of teachers in different contexts, and the development and validation of the FIT-Choice scale seems to meet the need.

2.1.3.2 Development, Validation, and Structure of the FIT-Choice Scale

The Factors Influencing Teaching Choice (FIT-Choice) scale is developed by Watt and Richardson (2007). The development of the scale is guided by the Expectation-Value Theory (Eccles et al., 1983; Eccles & Wigfield, 1995; Wigfield & Eccles, 2000) which basically means that individuals' choice and behaviours are mainly determined by two factors – expectation of success and task evaluation (see section 1.5.1 in Chapter 1 for details). According to the theory, a theoretical framework (see Figure 5) was proposed by the researchers (Watt & Richardson, 2007). As can been seen from Figure 5, the developers proposed self, value, task perceptions, and antecedent social influences as the four higher order factors, each of which was attached with various suborder factors concluded from previous studies. These factors were expected to have proximal or distal influences on the choice of teaching.

The FIT-Choice scale was applied to a large number of pre-service teachers from three universities in Australia and validated by the developers (Richardson & Watt, 2006; Watt & Richardson, 2007). It provides an analytical framework to steer future research in this field (Watt & Richardson, 2007), and demonstrates a new classification on teachers' career-choice motivations.

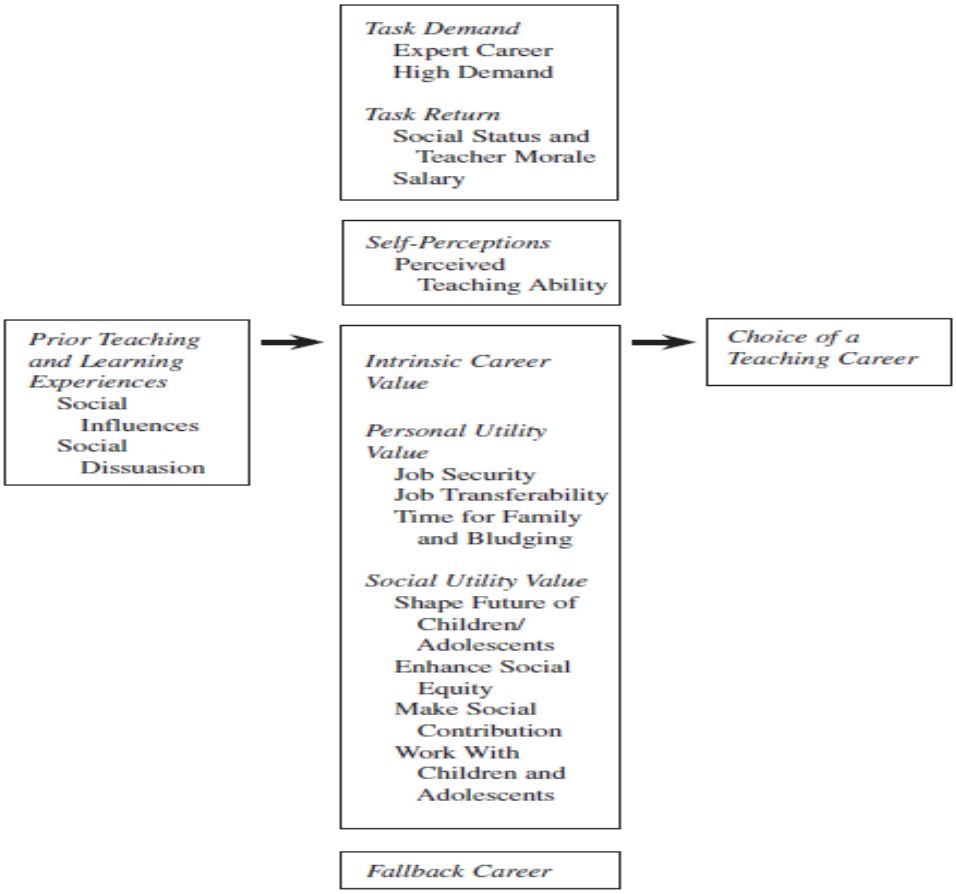

Figure 5: Theoretical Framework of the FIT-Choice Scale (Watt & Richardson, 2007)

The entire FIT-Choice Scale (see Appendix 7) contains three sections with 58 items which are respectively called Career-choice Motivation (38 items), Perceptions about Teaching (14 items), and Decision to Become a Teacher (6 items). Instructions in boldface are presented at the beginning of each section to remind participants of what the section means and how to complete it.

The first section, Career-choice Motivation, comprehensively incorporates not only the widely adopted intrinsic, altruistic, and extrinsic motivations, but also social influences, prior teaching and learning experiences, perceived teaching competence, and fallback career (Watt & Richardson, 2007). It is utilised to measure the influence of factors on participants' teaching career choice. This section consists of 12 first-order factors and 2 higher-order factors. The 12 first-order factors are denominated respectively as ability, intrinsic career value, fallback career, job security, time for family, job transferability, shape future of children/adolescents, enhance social equity, make social contribution, work with children/adolescents, prior teaching and learning experiences, and social influences. Among

them, 3 first-order factors (job security, time for family, and job transferability) share the higher-order factor of personal utility value, and 4 first-order factors (shape future of children/adolescents, enhance social equity, make social contribution, and work with children/adolescents) are subordinated to the higher-order factor of social utility value. The other 5 first-order factors have no higher-order factor. Each of the first-order factors is comprised of 3 to 5 items. Participants are asked to rate the importance of each item on a Likert scale ranging from 1 (not at all important) to 7 (extremely important) for its influence on their teaching career choice.

The second section – Beliefs about Teaching – comprises 4 first-order factors (expertise, difficulty, social status, and salary) to evaluate participants' perceptions about the teaching profession. The first-order factors of expertise and difficulty belong to the higher-order factor of task demand, and the other two first-order factors are included in the higher-order factor of task return. This section has 14 items and the participants are instructed at the start of this section to indicate their agreement on a 1 (not at all) to 7 (extremely) scale. When it was applied in western contexts such as Australia, the US, Germany, and Norway, motivations to teach seemed to have more similarities than differences, but perceptions about the teaching profession generally reflected the status quo of the profession in each country (Watt et al., 2012).

The last section of the FIT-Choice Scale is called Decision to Become a Teacher, which is comprised of 2 first-order factors – social dissuasion and satisfaction with choice – without any higher-order factors. This section has 6 items and each first order factor has 3 items. The participants are required to respond with their agreement on each item with a 1 (not at all) to 7 (extremely) scale.

2.1.3.3 Application and Amendment of the FIT-Choice Scale in Different Contexts

The FIT-Choice scale was firstly applied by the developers (Richardson & Watt, 2006; Watt & Richardson, 2008) to measure teaching motivation and other related outcomes of pre-service teachers in three Australian universities. It was then translated into different languages and applied to many other countries, such as Turkey (Akar, 2012; Kilinc, Watt, & Richardson, 2012), China (Lin et al., 2012), the Netherland (Fokkens-Bruinsma & Canrinus,

2012), Croatia (Jugović, Marušić, Ivanec, & Vidović, 2012), Germany (König & Rothland, 2012), Switzerland (D'Ascoli & Berger, 2012), and Ireland (Heinz, 2013).

Results of these studies generally revealed the feasibility of employing the FIT-Choice scale in different contexts and basically confirmed the sustainability of the FIT-Choice scale in their respective contexts (Watt & Richardson, 2012). Moreover, the multinational applications of the FIT-Choice scale made comparisons on teaching motivation across diverse settings available.

However, in some of these studies, modifications were made to the original FIT-Choice scale by both the developers and other researchers. In the developers' later studies, the FIT-Choice Scale was slightly modified by combining and renaming some sub-scales to cater for research purposes. For example, in a study applying the FIT-Choice Scale for an international comparison, the developers divided the scale into two general sub-scales: Motivation for Teaching and Perception about Teaching (Watt et al., 2012). Moreover, in another study, Watt and Richardson (2008) separated the FIT-Choice Scale containing 57 items (with one item dropped off from the original scale) into two major sub-scales and one additional sub-scale (the "two plus one subscales model"): Motivations for Teaching, Perceptions about Teaching, and Satisfaction with Choice. The Motivation for Teaching scale was a replacement of the original Influential Factors with the same 38 items. The Perception for Teaching scale comprised of 17 items was a combination of the original Beliefs about Teaching scale and part of Your Decision to Become a Teacher scale. The additional subscale of Satisfaction with Choice was comprised of the remaining 2 items from the original Your Decision to Become a Teacher scale.

In several other studies, some items of the FIT-Choice scale were deleted due to cross-loading, low factor loading, and/or low reliability (e.g.,Fokkens-Bruinsma & Canrinus, 2012, 2014; König & Rothland, 2012), and some items were moved to other factors and small modifications were made according to the factor loading pattern (e.g.,Fokkens-Bruinsma & Canrinus, 2012).

When the scale was applied in Chinese context by Lin et al. (2012), the purpose was to compare pre-service teachers' career-choice motivation between China and America. In the study, reliability and validity of the Chinese version of the FIT-Choice scale was basically supported by confirmative factor analysis; however, findings of the study (Lin et al., 2012) could be put in question due to its limitations, such as the relatively low reliability of two

subscales (the "fallback career" and the "job transferability") and the participants sampled from only one teacher-training institution in China.

2.1.4 Types of Teachers' Career-Choice Motivation

Various types of motivation to teach can be found in the literature reviewed in this study. Some of the types are named differently by the researchers but contain a similar meaning in essence, and some types are categorised into different groups in different studies. This inconsistence may be ascribed to no agreement on how to classify teachers' career-choice motivations and no unified survey instrument applied in these studies. According to initial research results of the current study, some perspectives on the six types of teachers' career-choice motivation concluded from this study are reviewed in the following sections. They will be further discussed in section 6.3.1 of Chapter 6.

2.1.4.1 Teacher Influence (Prior Teaching and Learning Experience)

As a type of motivation to choose teaching career, "teacher influence" in the current study is defined as the experiences pre-service teachers had with their previous teachers which influence their decision to choose teaching as a future career. This definition is similar to what is called "prior teaching and learning experience" by Watt and Richardson (2007) in the FIT-Choice scale.

Pre-service teachers were found to be influenced by their previous teachers to choose teaching as a career in many studies (e.g., Adkintomide & Oluwatosin, 2011; Fielstra, 1955; Richards, 1960; Su, 1993; Thornton, Bricheno, & Reid, 2002; Younger et al., 2004). The early studies found that pre-service teachers' prior socialisation experience gained from interactions with their former school teachers positively influenced their career-choice motivation (Fielstra, 1955; Richards, 1960; Su, 1993). The successfully recruited students in teacher-training programmes, as pointed out by Thornton et al. (2002), had a predominately positive view on primary school teaching career, and were encouraged into teacher-training programmes by "the positive experiences of schools, classrooms and teachers" (p. 41). This research finding was concurred in the study conducted by Younger et al. (2004) where one third of participants explained that their motivation to teach stemmed from their own positive schooling experience. Adkintomide and Oluwatosin (2011) examined the influence of teacher's physical characteristics on teaching career-choice motivation, and found that school

teachers' instruction quality, English fluency, dressing style, and communicating ability were assessed by student teachers in Nigeria as the most influential factors on their choice of teaching.

However, not all studies confirm the influence of previous teachers on pre-service teachers' career choice. In a comparative study conducted by Liu (2010), the qualitative results showed that the influence of teachers or family members was not a salient reason for Chinese pre-service teachers to become a teacher. The researcher explained that the Chinese teachers' role as authoritarians could deny them from providing career advice to students, and the students "may view teaching as a profession to pay respect to rather than a career to pursue themselves" (Liu, 2010, p. 70).

2.1.4.2 Job Advantages (Personal Utility Value/Extrinsic Motivation)

The separable outcomes of the teaching profession, such as job stability, career prestige, reliable salary, long holidays, and compatibility with family life, are deemed as job advantages of a teaching career in this study. For individuals who choose the teaching profession for the purpose of pursuing these advantages, they were perceived as extrinsically motivated (Kyriacou et al., 1999; Williams & Forgasz, 2009; Wong et al., 2014), and their motives were regarded as externally referenced motivations (Sinclair et al., 2006) or extrinsic reasons (Kyriacou & Coulthard, 2000) which basically fell into the category of "personal utility value" in the FIT-Choice scale (Watt & Richardson, 2007).

Some studies found that job advantages of the teaching profession were emphasised in Chinese societies. For example, these extrinsic benefits of teaching were ranked as the fourth important factor in the teaching motivation profile of Hong Kong pre-service teachers (Wong et al., 2014). According to another study (Lin et al., 2012), three unique features of Chinese society could enhance the attractiveness of the teaching profession in China. Included were the traditional Chinese Confucian culture which emphasises teachers' authority; the educational policies carried out by Chinese governments which usually focus on material stimulation; and the highly competitive job-market in the current society. The effect of these features was especially obvious for those who were motivated by the extrinsic benefits of the profession (Lin et al., 2012).

Additionally, the role played by extrinsic motivation on pre-service teachers seems not always negative. For example, in some studies, the extrinsic motivation was further divided into extrinsic adaptive motivation (e.g., choosing teaching because of its good career opportunities) which enhanced enduring and effective engagement in a task, and extrinsic maladaptive motivation (e.g., others' idea that teaching is a good career) that promoted disengagement or superficial engagement in the task (Bruinsma & Jansen, 2010; Sinclair et al., 2006). In the study conducted by König and Rothland (2012), it revealed an interesting finding that extrinsic motivation, such as job security, was increasingly related to pre-service teachers' learning gains during teacher education, whereas intrinsic motivation was not. It was therefore suggested that pre-service teachers' usage of learning opportunities during teacher education should not only be attributed to their intrinsic and altruistic motivations, but also to their extrinsic motivation (König & Rothland, 2012).

2.1.4.3 Social Value (Social Utility Value/Altruistic Motivation)

In this study, social value of teaching career means that performing teaching can give back to the society and help all children develop and succeed. It is called "social utility value" in the FIT-Choice scale (Watt & Richardson, 2007). For those who choose teaching because of the social value brought about by pursuing teaching career, such as facilitating children's development, making contributions to a diminishing educational gap, and promoting social equity (Chan, 2006), they are considered as altruistically motivated (Wong et al., 2014). Therefore, social value as a type of career-choice motivation of teachers is also termed as altruistic motivation in this study.

The development of the adolescent as a core characteristic of social value added by teaching has been discussed in many studies, and the internal desire to have influence on the growth and development of children has been described by some researchers as one feature of altruistic motivation for people to choose teaching (Sikes & Everington, 2001; Young, 1995; Zhao, 2008). Some studies found that enjoying witnessing students' progress at school was an indispensable portion of teachers' spiritual and emotional life (Borg, 2006; Sikes & Everington, 2001). Moreover, a three-year study found that enjoyment of pupil's success was cited as the most positive factors on beginning teachers' perceptions on teaching as a career in England (Kyriacou & Kunc, 2007).

2.1.4.4 Personal Interest (Intrinsic Career Value and Work with Children/Intrinsic Motivation)

Unlike job advantages as a motive to choose teaching, personal interest in the teaching profession has nothing to do with any fringe benefits of the profession, but is closely related to many innate psychological needs (Deci & Ryan, 2000a). As concluded by Wong et al. (2014), these needs include: enjoying the challenging and creative nature of teaching itself; loving passing on knowledge to the next generation; being intrigued by personal value and beliefs such as interest in teaching and working with children; and being motivated by the subject taught. When individuals choose the teaching profession according to their personal interest, their career-choice motives are considered as intrinsic reasons (Kyriacou & Coulthard, 2000) or internally referenced motivations (Sinclair et al., 2006), which are classified into the "intrinsic career value" category in the FIT-Choice scale (Watt & Richardson, 2007).

Personal interest in the subject taught was found to be one of the most common types of career-choice motivation for subject teachers, especially Math, Chinese, and English teachers in primary or secondary schools (e.g., McDonough, 2007; Zhao, 2008). In a recent study (Wong et al., 2014), the intrinsically oriented personal interest in the subject taught was ranked by pre-service teachers in Hong Kong as the second most important reason for their choice of the teaching profession, which was followed by their personal interest in teaching itself.

Intrinsic motivation of pre-service teachers was usually regarded as significant because it was not only related to their future teaching strategy and job satisfaction, but also correlated with students' learning motivation (Fokkens-Bruinsma & Canrinus, 2014; Malmberg, 2006). Moreover, it could be an important criterion for assessing pre-service teachers' studies during teacher-training education, and their retention in and commitment to the teaching profession (Bruinsma & Jansen, 2010; Hauge, Björkqvist, Hansén, Carlgren, & Bergem, 1997; Malmberg, 2006).

Additionally, some studies found that the possibility of staying in the teaching profession was related with pre-service teachers' intrinsic career-choice motivations. For example, some researchers found that pre-service teachers motivated by intrinsic career-choice motivation, such as working with children, making a difference, or achieving personal fulfilment, were

more likely to report that they had a plan for long-time teaching after graduation (e.g., Bruinsma & Jansen, 2010; Hughes & Manuel, 2006; Kyriacou, Kunc, Stephens, & Hultgren, 2003). Similarly, results of a survey on pre-service teachers from both England and Norway revealed that those who perceived teaching children as more important than subject specialty expected to stay in the teaching profession for more than ten years (Kyriacou et al., 2003).

2.1.4.5 Others' Suggestion (Social Influences)

As a type of teaching career choice motivation, others' suggestion means that individuals take the suggestion from significant others, such as family members, friends, and classmates (Darling-Hammond & Sclan, 1996), to choose teaching as their future career. In the FIT-Choice scale, it is named as "social influences" which belongs to one theme of antecedent socialisation influences (Watt & Richardson, 2007).

In the literature consulted, limited studies focused on the influences of significant others' suggestion on pre-service teachers' choice of a teaching career. According to a recent study (Wong et al., 2014), social influence in the form of encouragement from parents and friends was ranked as the fifth important motivational factor to choose teaching by pre-service teachers in Hong Kong.

2.1.4.6 Fallback Career

Fallback career as a motivation to choose teaching means that individuals enter the teaching profession due to unavailability of other professions and/or uncertainty about personal career goals. It is applied in the FIT-Choice scale to describe pre-service teachers who "have failed to be accepted into the career of choice or otherwise been unable to pursue their first-choice career" (Watt & Richardson, 2007, p. 174).

In studies where fallback career was considered as a type of motivation to choose teaching, it was usually placed at the bottom of their motivational profiles by pre-service teachers as the least important type of motivation to teach (e.g., Fokkens-Bruinsma & Canrinus, 2012; Lin et al., 2012; Wong et al., 2014). However, for those who emphasised teaching as their fallback career, several specific reasons were given for their choice of teaching.

Some may have chosen teaching because it was an easy-to-enter job (Sinclair et al., 2006). Some took it for granted to choose teaching because of their major subjects in the teacher

education programmes matched with those in schools (Müller, Alliata, & Benninghoff, 2009). When a teaching job or a teacher education course was suddenly available in a tough job market, some would choose it by default (Hatch, 1999; Zhao, 2008) because they entered the teaching profession "without making a conscious decision to do so" (Zhao, 2008, p. 189). Moreover, in the stringent job market where desired jobs were not available, the teaching profession could become the choice for some individuals who took it as the last resort following the principle of lesser evil (Klassen, Al-Dhafri, Hannok, & Betts, 2011; Watt & Richardson, 2012; Wong et al., 2014). Additionally, for Chinese pre-service teachers, a study suggested that low scores in the National Entrance Examination could force some of them to enter teacher-training programmes (Liu, 2010).

Fallback career as a motivation to choose teaching was often found to be a maladaptive factor with multiple functions. One study (Bruinsma & Jansen, 2010) found that failure to getting into first choice of study as the motivation to choosing the teaching profession, which was named as "extrinsic maladaptive motivation" in that study, could be indicative of negative experiences during teacher training and less engagement in the teaching profession. In the study conducted by Lin et al. (2012), Chinese pre-service teachers with fallback career-choice motivation were found to have lower satisfaction level with the choice of teaching than their America counterparts. In another study (König & Rothland, 2012), fallback career was found to be negatively related with pre-service teachers' general pedagogical knowledge in the earlier measurement, but no significant correlation between them was found in the later test. This result could suggest that "fallback career motivations do not have an enduring negative effect" because "once future teachers who hold a fallback career motivation have chosen to strive for teaching as a career, and become familiar with their teacher education programme, they might overcome this motivation which could even turn into an intrinsic motivation" (König & Rothland, 2012, p. 306).

However, some studies suggested that fallback career as a motivation to choose teaching played a complicated role which deserved more in-depth analyses. An earlier study showed that, for some Chinese teachers who chose teaching without making a conscious decision and had no plan for professional development, they appeared to have some layers of intrinsic motivation to teach too (Zhao, 2008). In a recent study in Hong Kong (Wong et al., 2014), researchers identified two distinct types of fallback career motivations in choosing teaching: the alternative type and the provisional and non-committed type. Their functions were found to be different in terms of planned engagement in teaching. The former was adaptive when it

was associated with intrinsic and altruistic motivations; the latter, however, was found to be maladaptive (Wong et al., 2014).

2.1.5 Factors Influencing Teachers' Career-Choice Motivation

Career-choice motivation of teachers is full of complexities and paradoxes (Zhao, 2008). In the whole process of choosing teaching career, motivation and demotivation factors are co-existing (Dörnyei & Ushioda, 2011; Hatch, 1999), and when individuals choose teaching as their future career, they may or may not have the "free choice" of their desired career as "they may be constrained by internal and external resources" (Richardson & Watt, 2010, p. 142). Many studies therefore have probed what factors could influence the choice of teaching, and their conclusions seem not always the same.

Many studies tended to believe that pre-service teachers' motivation to teach could be mediated by their personal experiences and life stories gained from the circumstances they live and study (e.g., Bodycott, 1997; Gao, 2008; Gao & Trent, 2009; Su et al., 2001). Similarly, some studies suggested that teachers' previous experiences and social backgrounds influenced their career choice motives (Gordon, 2000; Su et al., 2001). Moreover, in the study conducted by Kyriacou et al. (1999), the diversity of the motives to teach reported by people was believed to be influenced by the cultural, social, and economic contexts they were involved in, and the subject they were going to teach. Additionally, some factors were found likely to decrease motivation to choose teaching as a career according to the study of Gordon (2000) on Asian minority students in America. These resistant factors included parental pressure for positions with higher social status and financial rewards, high requirements of Chinese culture for teachers, and worry about uncomfortable work in the educational environment.

Drawing on literature consulted in the present study, factors influencing teachers' career-choice motivation are categorised into three groups. Included are demographic information (such as gender, age, ethnicity, and family background), teacher education (such as teacher-training programmes, academic achievement, and major subject), and social context (such as culture and teaching profession). According to research questions of the present study, the following sections are going to review some of these factors in detail and others in brief. In section 4.6 of Chapter 4 and section 6.5.2 of Chapter 6, more discussions can be found about some of these factors' influences on the Chinese PFPTs' career-choice motivation.

2.1.5.1 Gender

Teaching as a stable profession seems to become "woman's work" as described in literature (e.g., Edmonds, Sharp, & Benefield, 2002; Goodson & Hargreaves, 1996; Hatch, 1999; Zhao, 2008), and career-choice motivation of female pre-service teachers was found to be more children-centred than that of their male counterparts in many studies (e.g., Brookhart & Freeman, 1992; Drudy & Ebooks, 2005; Heinz, 2013).

Findings of studies in different countries similarly revealed that the population of female pre-service teachers in teacher-training programmes outnumbered that of their male counterparts (e.g., Guarino, Santibanez, & Daley, 2006; Richardson & Watt, 2006; Su et al., 2001). In an early study with large-scale questionnaire surveys across mainland China, Su et al. (2001) found that 58% of Chinese pre-service teachers were female. In Australia, researchers found the enrolments in teacher-training programmes were largely dominated by females (Richardson & Watt, 2006). Moreover, a systematic review on studies of teacher recruitment and retention in the United States also concluded that, among new teachers, females occupied a greater proportion than males (Guarino et al., 2006).

The unbalanced proportion of male and female pre-service teachers attracted the attention of many researchers globally, most of whom explored the influences of gender on pre-service teachers' career-choice motivation and other related issues. Although their studies were set in different contexts, one common finding, according to the literature reviewed in the present study, was that female pre-service teachers tended to place a greater importance on intrinsic reasons for their choice of teaching, while male pre-service teachers seemed to emphasise more on extrinsic career-choice motivations. This view can be seen from the following research findings.

In an early study on students' perceptions of primary teaching in the United Kingdom, Johnston, McKeown, and McEwen (1998) found that, compared with females, the male sixth-former students were more likely to regard teaching as a well-paid occupation and addressed a greater importance of extrinsic benefits like teacher's social status. In a later study conducted by Moran et al. (2001), gender difference on motivation to teach was found among Northern Ireland pre-service teachers. The results showed that female pre-service teachers attached greater importance than males to intrinsic teaching motivations, such as enjoying working with children, sense of mission, intellectual challenge, and social contribution.

Moreover, the females rejected the influence of the factor "teacher training and teaching as employment" more strongly than males (Moran et al., 2001, p. 23). Another study in the Irish context found that, compared with their male counterparts, female pre-service teachers attached greater importance to "working with children" as their motivation to teach, and their decision to teach was influenced more significantly by previous teaching and learning experiences (Heinz, 2013). In a study in Turkey, researchers (Topkaya & Uztosun, 2012) found that male Turkish per-service teachers emphasised job security and employment possibility more than their female counterparts.

In Chinese societies, similar research findings were concluded in some studies. In a study with participants of 1249 students from 20 Hong Kong secondary schools, the researchers found that approximately 55% of the female students expressed their interest in teaching, while around 47% of the male students reported that they were interested in teaching (Lai et al., 2005). In another study on Chinese pre-service teachers' entry motivation to the Government-Funded Teacher Education programme, when compared with male counterparts, female pre-service teachers were found to be more motivated by the Government-Funded Teacher Education Policy, the intrinsic value of teaching profession and their perceptions on the profession (Li et al., 2013).

However, not all studies found a significant difference in motivation to teach between the male and the female pre-service teachers. For example, the later study conducted by the same researchers (Johnston, McKeown, & McEwen, 1999), which focused on the difference between male and female students in terms of reasons to choose primary teaching profession in the United Kingdom, concluded that females who claimed to be attracted to teaching by intrinsic motives placed a greater importance on the extrinsic factors. Moreover, a study using the survey approach in Singapore found that there was no significant difference between male and female teacher candidates on all motive factors, which suggested they were attracted to a teaching career for the same reasons (Goh & Atputhasamy, 2001). Similar findings were also reported in the study conducted by Richardson and Watt (2005), in which very little evidence was found for gender difference in career-choice motivation of pre-service teachers in an Australian university.

In addition, the difference brought along by gender on factors other than career-choice motivation had been explored in some studies. The study conducted by Su et al. (2001) showed that female Chinese pre-service teachers had more affection to the teaching

profession than their male counterparts. The prevailing phenomenon in teaching career that women teach while men manage (Rury, 1986) was mirrored in the study conducted by Wang and Fwu (2001), who found that male pre-service teachers had a stronger aspiration for running a school and making a greater influence on education. This echoes the narrative story of Bin Bin in the present study (see section 5.4.1 in Chapter 5).

2.1.5.2 Age

Pre-service teachers enrolled in teacher-training programmes are generally young – usually between their early and late 20s (Richardson & Watt, 2006). In a study with a large sample of pre-service teachers from mainland China, Su et al. (2001) found that 95% of Chinese pre-service teachers were younger than 25 and none of them were over 30 years old. On average, these Chinese pre-service teachers were found to be younger than their counterparts from the USA (Su et al., 2001).

The influence of age on teachers' career-choice motivation was explored in some studies. Results of these studies, however, appear to be dissimilar or even contradictory.

Several studies found that younger pre-service teachers were influenced more by intrinsic motivations than their older counterparts. For example, in an earlier study with participants of pre-service teachers in Northern Ireland, Moran et al. (2001) found that two of the six factors influencing the choice of teaching were reported significantly different by different age groups. To be exact, younger pre-service teachers (under 25) were found to be influenced more than their older counterparts by some intrinsic motivations to teach, such as love of children and sense of vocation, whereas those over 25 seemed to be less likely to reject the attraction of benefits from teacher training and employment (Moran et al., 2001). This finding was echoed by a later study conducted by Sinclair et al. (2006), in which working with children as an aspect of intrinsic teaching motivation was found to be weaker among older pre-service teachers than their younger counterparts.

Moreover, a later study in the Chinese context reported a significant difference in career-choice motivation between different age groups (represented by different year of study) of pre-service teachers. The finding showed that there was a statistically significant difference between the first-year and the third-year Chinese pre-service teachers in terms of their entry motivations to the same teacher-training programme (Li et al., 2013).

However, a study in Turkish context found that there was no statistical difference between younger (first-year) and older (fourth-year) Turkish pre-service English teachers in terms of their teaching career choice motivation (Topkaya & Uztosun, 2012).

Additionally, the age of pre-service teachers is found to be related to other motivational factors as well. In the study on teaching motivation of Singaporean pre-service teachers, the researchers divided the participants into three age groups, and found that different age groups were influenced differently by the motivating factors. The younger entrees to teacher training programmes were more influenced by their teachers, parents, and friends to choose teaching than the 21-24 age group (Goh & Atputhasamy, 2001).

2.1.5.3 Family Background

Pre-service teachers enrolled in teacher-training programmes are similarly found in many studies to come from families with lower income than that of other university students (e.g., Brookhart & Freeman, 1992; Richardson & Watt, 2006; Su et al., 2001). In the review on studies published by early 1990s in the western contexts, Brookhart and Freeman (1992) concluded that pre-service teachers were generally from homes with relatively lower family income when compared with university students in non-education majors. In the study conducted by Richardson and Watt (2006), most pre-service teachers from three teacher-training universities in Australian were found to have a low family income. Moreover, in the comparative study with a large-scale sample, Su et al. (2001) concluded that, the majority of Chinese pre-service teachers came from rural areas and generally had a disadvantageous socioeconomic background when compared with their American counterparts. The same study (Su et al., 2001) showed that a significantly large number of Chinese pre-service teachers, most of whom were from less privileged and minority districts in China, depended on scholarship, stipend money or financial aid provided by the teacher-training institutions for their teacher-training studies.

The influence of pre-service teachers' family background on their career-choice motivation is shown in some studies. For example, in the study conducted by Lai et al. (2005), the results showed that the secondary school students in Hong Kong with higher family income were less interested in teaching than those with lower family income, which suggested that the attractiveness of teaching was weak for students from relatively wealthy family. Another study conducted by Li et al. (2013) suggested that the family economic status of Chinese pre-

service teachers could be related to their entry motivation to the Government-Funded Teacher Education programme. Those Chinese pre-service teachers with higher family income generally placed a greater importance on the attractiveness of the Government-Funded Teacher Education Policy as their motivation to enter the programme; however, their counterparts with lower family income cited social persuasion as a more important motivational factor for them to choose the same programme (Li et al., 2013). Moreover, in the same study, Chinese pre-service teachers from urban areas were found to emphasise their perceptions about the teaching profession as a motivational factor to enter a teacher-training programme significantly higher than those from rural areas (Li et al., 2013).

2.1.5.4 Teacher-Training Programmes

Teacher education courses are criticised in many studies for failing to familiarise pre-service teachers with future teaching experiences and hence creating a huge gap between theories they were taught at university and practical problems they meet in the classroom (e.g., Cochran-Smith & Zeichner, 2005; Darling-Hammond, LaFors, & Snyder, 2001). However, the same studies assume that teacher-training programmes could have effects on pre-service teachers' development, and some of them tested it by exploring these programmes' influences on career-choice motivation of pre-service teachers.

In their earlier study, Sinclair et al. (2006) presumed that career-choice motivations of pre-service teachers could be changed by some real-life experiences they gained from a teaching internship during teacher preparation. This assumption was supported by their later study (Sinclair, 2008), which found that some changes of motivation to teach were mainly due to the influence of the first-year teaching practicum.

To examine the influence of teacher education on pre-service teachers' teaching motivation, some studies compare students trained at different stages of the same teacher education programme. One example is the quantitative study using the FIT-Choice scale in Dutch context (Fokkens-Bruinsma & Canrinus, 2012). By comparing the first-year and the last-year pre-service teachers in a one-year training programme in the Netherlands, Fokkens-Bruinsma and Canrinus (2012) found that social influence and teaching ability were perceived to be more important teaching motivations by those at the end of the programme than their counterparts at the beginning stage. In their recent study, Canrinus and Fokkens-Bruinsma (2014) used the FIT-Choice scale to compare pre-service teachers' motives for entering the

teaching profession at the beginning and end of a single year teacher education programme in Netherland, and found that their motives generally remained stable, but 'social utility value' as their teaching career choice motivation was rated significantly lower at the end of the education.

2.1.5.5 Teaching Profession

Some studies suggested that the characteristics of the teaching profession could influence teachers' career-choice motivation. Teaching was often described as a secure and reputable career (Cavanagh, 2007). This feature of teaching, according to the finding of Liu (2010), acted as a promoting factor for many Chinese pre-service teachers to choose it as their future career. The findings of the study conducted by Sinclair (2008), however, revealed that Australian pre-service teachers were attracted to the teaching profession due to easy access to the profession or high status of teachers. Moreover, several studies found that teaching motivation was more likely to be child-centred for elementary teachers and subject-oriented for secondary teachers (Book & Freeman, 1986; Thomson et al., 2012), which suggested that the teaching profession at different educational levels could attract teachers with different motivations to teach. This was echoed in the study conducted by Low et al. (2011), in which pre-service teachers to teach in primary schools in Singapore were found to be motivated by working with children more than those aspiring to teach in secondary schools.

However, it was found in some studies that pre-service teachers tended to have some naive and unrealistic perceptions about the teaching profession (e.g., Hong, 2010). Some pre-service teachers conceived the primary tasks in the teaching profession as establishing affective and interpersonal relationships rather than passing knowledge and developing skills (Fajet, Bello, Leftwich, Mesler, & Shaver, 2005).

2.1.5.6 Culture

According to some studies reviewed in this study, unique culture in different countries could help to explain why people choose to become a teacher in that context. In China, both the Confucius philosophy and the Taoism have influenced traditional Chinese culture. The Confucius philosophy prioritises country and family over individuals, and puts others ahead of oneself. Therefore, it is acknowledged and respectable if teachers sacrifice their time, youth, or even life for the teaching profession, the students, and the benefits of the whole

community. The purpose of Taoism, however, is to maintain a harmonious sense within oneself. For Chinese people who follow the principle of Taoism, they gradually acquired the ways to improvise by utilising different senses and capacities, and by keeping in line with the current situations. When confronting changes, they would rather keep inner integrity by adapting new challenges incrementally and patiently than actively resist them. When facing adversities, they tend to be optimistic by believing the positive, good and beautiful side is forthcoming (Li & Niyozov, 2008).

Teaching as a profession in the traditional Chinese culture is highly regarded by the whole society. This tradition of respecting teachers and emphasising education was found to be one of the main reasons for pre-service teachers in mainland China to choose teaching as their future career (Liu, 2010). However, in another study (Gordon, 2000), the traditional Chinese culture was found to increase resistance of Asian Americans to become K-12 school teachers in America. These resistant elements in Chinese culture, according to the researcher, included severe stress from family members to pursue stable, well-paid and highly valued professions; lack of self-confidence to meet the requirements of teaching set by Chinese culture; reluctance to work in a uncomfortable zone; and underestimating the importance of race-matched teaching (Gordon, 2000).

The culture difference in teachers' career-choice motivation was also found in other contexts. For example, Akar (2012) found that social-culture context of Turkey influenced teacher candidates' motivation to teach and perception about teaching in that country. Moreover, a comparative study found that career-choice motivation of Canadian pre-service teachers focused more on individual and social value utilities; whereas Omani counterparts were more influenced by social culture and more likely to choose teaching as a fallback career (Klassen et al., 2011). Based on their findings, Klassen et al. (2011) suggested that teachers' motivations differed according to their social culture backgrounds; therefore, it may be misleading and culturally biased to fit international teachers' motives into a 'universally desired pattern' (p. 587) and to select teachers accordingly.

2.1.5.7 Other Factors

In limited studies, some other factors, such as ethnicity, academic achievements, and major subject, were found to be influential on teachers' career-choice motivation. The following sections review each of them briefly.

By analysing data collected from 1,692 Chinese pre-service teachers who responded to their questionnaire surveys, Su et al. (2001) found that pre-service teachers in P.R. China are Han ethnic dominated with only approximately 13% minority students mainly from Tibet, Yunnan and Inner Mongolia. These pre-service teachers reported low levels of commitment to the teaching profession due to low status and low returns for teachers (Su et al., 2001).

The same study also found that Chinese pre-service teachers had a lower academic achievement than their American counterparts (Su et al., 2001). Moreover, unlike the American pre-service teachers who had free will to choose the programme, many Chinese pre-service teachers chose the teacher education programmes reluctantly – mainly because of their lower scores in the National College Entrance Examination or other practical considerations like the financial difficulties of the family (Su et al., 2001). Additionally, in the study conducted by Lai et al. (2005) with participants of 1249 Hong Kong secondary school students, the results showed that the students with lower university admission scores were more interested in teaching than those with higher university admission scores. Moreover, the students with higher expectations on their scores in the Hong Kong Advanced Level Examination were less interested in becoming a teacher than those with lower expectations (Lai et al., 2005).

The influence of major subjects on the choice of the teaching profession was explored in a couple of studies. A study found that Hong Kong secondary school students in art streams were more interested in teaching than those in science or commerce (Lai et al., 2005). In another study, the researchers (Li et al., 2013) found that, when compared with their counterparts majoring in science and humanities, Chinese pre-service teachers in the majors of drawing, music and physical education rated higher on social influences, and lower on their perceptions about teaching, as their entry motivation to a teacher-training programme.

2.1.6 Implications of Teachers' Career-Choice Motivation

The significance of career-choice motivation of teachers has been discussed in many studies. It is believed that teachers' career-choice motivation is not only an important predictor for teachers' performance and work commitment, but also an influential factor on students' motivation, attitudes on learning, and achievement (Day, Elliot, & Kington, 2005; Zhao, 2008). In regard to teacher education, as concluded by Liu (2010), studies on career-choice motivation of pre-service teachers could provide useful information for teacher educators to

better understand and appropriately support pre-service teachers; for educational researchers and curriculum leaders to analyse the relationship between pre-service teachers' characteristics and their classroom teaching performance, and to design high quality teacher education programmes; and for policy makers to implement proper plans on teacher recruitment, preparation, and retention. Therefore, it is suggested that career-choice motivation of teachers deserves more attention in educational research (Brookhart & Freeman, 1992; Malmberg, 2006; Pelletier, Séguin-Lévesque, & Legault, 2002).

Some of the main implications of teachers' career-choice motivation are introduced in the following sections. These implications could help understanding rationale and significance of the present study, which are going to be discussed in section 6.6.2 of Chapter 6.

2.1.6.1 Teacher Recruitment and Retention

In countries where teaching force is insufficient, career-choice motivation of teachers is explored for the purpose of providing effective strategies for teacher recruitment and retention (e.g., Hong, 2010; Hughes & Manuel, 2006; Organisation for Economic Co-operation and Development, 2005; Sinclair et al., 2006; Thornton et al., 2002). As it was pointed out by the Organisation for Economic Co-operation and Development (2005):

> The reasons that people give for deciding to become a teacher are important considerations in designing recruitment strategies, and in identifying the sources of job satisfaction that influence whether people are likely to stay in the career (p. 68).

Many studies suggested that pre-service teachers' career-choice motivation, as well as their perceptions about teaching and job satisfaction, could help understand the reasons for teachers' retention and attrition (Ding & Sun, 2007; Lin et al., 2012; Richardson & Watt, 2010), which will inform educational policy makers and school leaders for maintaining teaching force in different nations (Richardson & Watt, 2006).

Additionally, in other countries or regions where teachers are oversupplied, such as the Republic of Ireland (Heinz, 2013) and Hong Kong (Wong et al., 2014), studies on teachers' motivation were also conducted. These studies explored the deep and complex reasons for teaching and other significant issues under specific contexts.

2.1.6.2 Outcomes of Teacher Education

A study suggested that it was important to explore the influences of pre-service teachers' career-choice motivations on the outcomes of teacher education programmes because these potential influences may lead to differences in "learning developments" and "professional knowledge" of pre-service teachers during teacher preparation (König & Rothland, 2012, p. 293). In their empirical study in Germany, König and Rothland (2012) found that some types of teaching motivation were related with pre-service teachers' general pedagogical knowledge, such as their knowledge about motivating students, structuring lessons, managing classroom, and assessing students. To be specific, pre-service teachers' intrinsic motivations were found to be positively related with their general pedagogical knowledge, while the correlation between their extrinsic motives and general pedagogical knowledge appeared to be negative. The reasons, as predicted by König and Rothland (2012), could be that, during teacher education, highly intrinsically motivated pre-service teachers would study more intensively and spend more time on learning subjects related to teaching profession.

Additionally, the same study showed that job security as an extrinsic motivation played a positive role in pre-service teachers' general pedagogical knowledge growth, whereas intrinsic motivation did not (König & Rothland, 2012).

2.1.6.3 Commitment to Teaching Profession

One viewpoint held by many studies was that teaching career choice motivation and commitment to teaching profession were related (e.g., Allison, 1982; Serow, 1994; Wang & Fwu, 2001). In the study conducted by Wang and Fwu (2001), for example, those motivated by intrinsic and altruistic factors were found to be more enthusiastic about and more dedicated to the teaching profession than those who were motived by extrinsic motives to choose teaching, such as job security and time compatibility.

Similarly, in another study, pre-service teachers' motivation to teach was found to be related to their affective commitment to the teaching profession (Fokkens-Bruinsma & Canrinus, 2012). Applying the FIT-Choice scale in a Dutch context, Fokkens-Bruinsma and Canrinus (2012) empirically confirmed that pre-service teachers' positive emotions towards the teaching profession and strong desire to stay in the profession were able to be predicted by some of their career-choice motivations, such as perceived teaching competency, working

with adolescents, previous teaching and learning experience, and time compatibility with family. The higher importance pre-service teachers placed on these motives, the more positive emotions and stronger desire they would have towards teaching and maintaining employment in the teaching profession. These motives, therefore, were regarded as adaptive career-choice motivations (Canrinus & Fokkens-Bruinsma, 2012).

2.1.6.4 Engagement in Teaching Profession

A couple of studies recently explored the implication of pre-service teachers' career-choice motivation on their planned engagement in a future teaching career. Findings of a study (Wong et al., 2014) echoed the conclusion that altruistic and intrinsic motivations to teach were adaptive as they were positively correlated with planned teaching engagement of pre-service teachers in Hong Kong.

In another study in Dutch contexts (Fokkens-Bruinsma & Canrinus, 2014), "work with children and adolescents" as an important career-choice motivation in that country, was also found to be predictable for pre-service teachers' engagement with the teaching profession, such as their intended persistence, planned efforts, and professional aspiration. For those who chose teaching as a fallback career, the same study (Wong et al., 2014) suggested that it was especially important for teacher education providers to cultivate their altruistic and intrinsic teaching motivations so as to offset the negative effects of a fallback career motivation on teaching-related outcomes.

2.1.6.5 Other Implications

Career-choice motivation of teachers was also found to be significant for some other issues, such as becoming a successful teacher, career orientation, and satisfaction with the teaching profession. In a study on pre-service teachers beliefs about teaching (Whitbeck, 2000), the findings revealed that those who regard teaching as a "special calling" or "gift" would become a more successful teacher than those who had other beliefs for this career. In a systematic review, Bielby et al. (2007) reported that those who had a weak orientation on entering the teaching profession were more likely to be motivated by extrinsic factors than those who actively chose teaching as a career. Moreover, in the study conducted by Li et al. (2013), Chinese policy-funded pre-service teachers' satisfaction levels with the teaching

profession were found to be predictable by their entry motivation to the Government-Funded Teacher Education programme.

2.2 Study Engagement in Higher Education

The importance of attracting and maintaining the 'right' candidates in the teaching profession has been widely recognised and emphasised in different countries. One of the characteristics of those 'right' candidates is their high engagement in teacher-training programmes (Sinclair et al., 2006). As some studies suggested, pre-service teachers' study engagement in teacher preparation could be an indicative or predictive factor of their engagement in the teaching profession in the future (e.g., Jordell, 1987; Steen, 1988). Psychological research in teacher education also suggested that pre-service teachers' study engagement in teacher-training programmes could be correlated with their teaching career choice motivations (Pintrich, 1990). However, few studies seem to explore the effects of pre-service teachers' career-choice motivations on their study engagement in teacher-training programmes. As Sinclair et al. (2006) pointed out in their study, "what has not been examined to date…are the effects that specific entry motivations may have on the quality of pre-service teachers' engagement in teacher education courses" (pp. 1133-1134). The present study is trying to probe the potential effects of career-choice motivation on study engagement of Chinese pre-service teachers. Before doing that, the following sections are going to review the existing literature pertaining to research perspective, conceptual framework, definition, measurement, influencing factors, and implications of study engagement in higher education and beyond.

2.2.1 Research Perspectives on Student Engagement

Mainly due to its complex, overarching, multifaceted nature, and multidimensional construct, definitions on student engagement were varied (e.g., Fredricks, Blumenfeld, & Paris, 2004; Kahu, 2013; Trowler, 2010; Zepke & Leach, 2010). In a comprehensive literature review, Fredricks et al. (2004) concluded that existing studies tended to describe school students' engagement from behaviour, emotional, and cognitive perspectives. A later literature review summarised that "student engagement is concerned with the interaction between the time, effort, and other relevant resources invested by both students and their institutions intended to optimise the student experience and enhance the learning outcomes and development of students and the performance, and reputation of the institution" (Trowler, 2010, p. 3). According to the understanding of Zepke (2015), the mainstream view conceived student

engagement as a set of behaviours of the student and institution within a classroom which were predictors of learning quality and student success; while the holistic and critical vision perceived student engagement as a social-cultural ecosystem which connected classroom, student background, and community and contributed to learning. Another study suggested to refine engagement questions by focusing on "how do we engage (cognitively, behaviourally, and/or emotionally) type X students more effectively in type Y learning processes/contexts so that they will attain knowledge, skill, or disposition Z?" (Axelson & Flick, 2010, p. 41). One study which narrowed down its focus on pre-service teacher's engagement in teacher training programmes proposed an engagement framework for teacher education (Pittaway, 2012). In this engagement framework, five non-hierarchical dimensions of engagement in teacher education were presented, namely personal, academic, intellectual, social, and professional elements of engagement. They were distinct yet interrelated and emphasised the connection between intellectual environment at university and context background of the teaching profession (Pittaway & Moss, 2013).

Research perspectives on student engagement at the tertiary level seem to be even more diversified. In the study conducted by Gunuc and Kuzu (2015), a scale to measure university students' engagement was developed and validated which contained six factors representing diverse dimensions of student engagement within the scope of campus engagement and classroom engagement: value, sense of belonging, cognitive engagement, peer relationship, relationship with teachers, and behaviour engagement. However, as concluded by Kahu (2013), there were four distinctive and dominant research approaches in student engagement at tertiary level: behavioural, social-cultural, psychological and holistic perspectives. The general ideas of each strand are concluded as follows.

The behavioural perspective emphasises students' behaviour and institutions' educational practice. Following this approach, the definition of engagement is "the time and effort students devote to educationally purposeful activities" (Radloff, 2010, p. 1). The social-cultural perspective foregrounds the impacts of broader institutional, social, cultural and political contexts on student engagement. It provides significant views on why some undergraduates, especially non-traditional students, alienate from campus life (Kahu, 2013). The psychological perspective is more individual-focused. It defines engagement as a students' internal psycho-social process, which develops over time and changes in strength. This approach usually combines together the dimensions of behaviour, emotion, cognitive,

and conation[8]. However, when compared with other perspectives, one most significant advantage of this approach is that it differentiates outcomes of engagement from its antecedents, just as Kahu (2013) concluded in a literature review that the psychological perspective "does not conflate the state of being engaged with its antecedents or its consequences, a problem that is rife in other perspectives" (p. 763). The holistic perspective is taken when the three strands are drawn together in a study. An example is the use of "conceptual organiser" to integrate different perspectives of engagement (Zepke, Leach, & Butler, 2010). The inclusiveness of this approach realises the importance of students' motivation and expectation in their engagement.

Among these research perspectives on student engagement reviewed above, the present study adopts the psychological one. As discussed in Chapter 1, research purposes in this study include exploring the impacts of the Government-Funded Teacher Education Policy (GFTEP) on study engagement of pre-service teachers, and examining the correlations between pre-service teachers' career-choice motivation and their study engagement. Both of the two aims regard study engagement as an outcome rather other an antecedent. Therefore, the psychological research perspective, which perceives study engagement as a consequence of other factors, is more appropriate for the research purposes of the present study than other perspectives.

2.2.2 A Conceptual Framework of Engagement, Antecedents, and Consequences

While stating the advantages and benefits of each perspective mentioned above, Kahu (2013) stressed that each of them only told parts of the whole story, and summarised some problems in these perspectives, such as poor definition and no clear distinction between state of engagement and factors influencing students' engagement. To compensate these shortcomings, Kahu (2013) proposed a conceptual framework (see Figure 6) for comprehending student engagement which "integrates these diverse perspectives" and "more clearly separates the antecedents and consequences of engagement from the psychosocial state of being engaged" (p. 765).

[8] Conation is a component in mental processes which reflects the will to success, such as desire, volition, and striving.

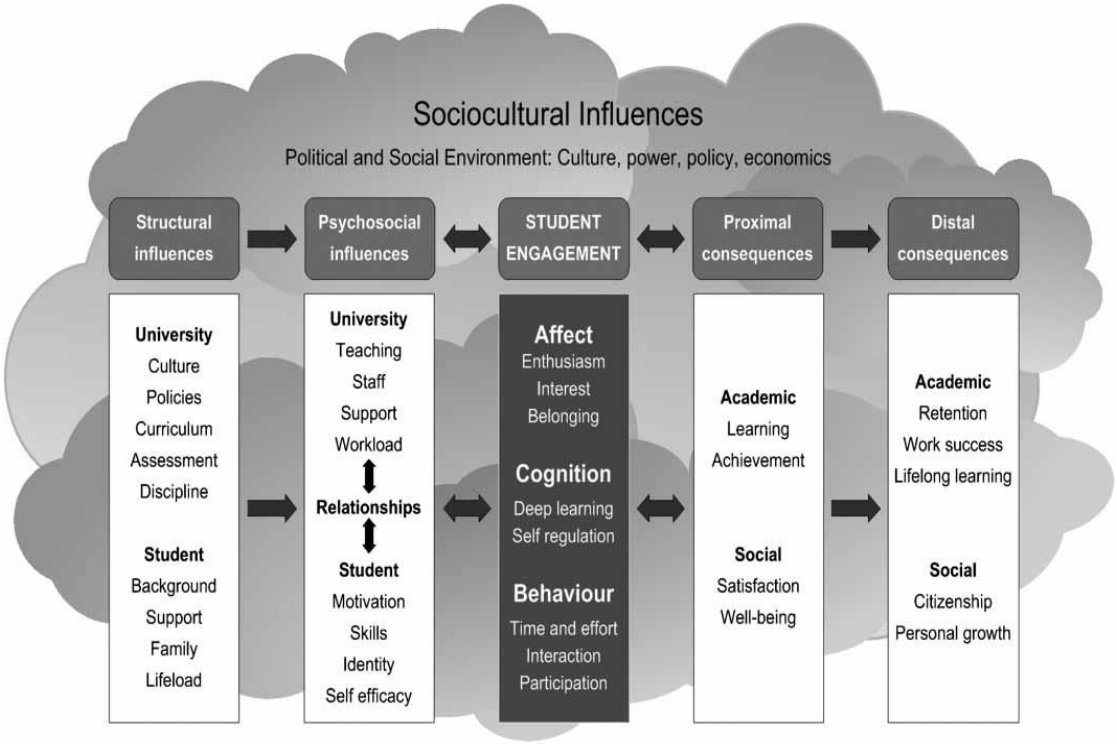

Figure 6: Kahu's (2013) Conceptual Framework of Engagement, Antecedents and Consequences

As described in Figure 6, the conceptual framework comprises antecedents influencing student engagement and consequences produced by student engagement, both of which are embedded with a wider social-culture context. Although it does not depict all factors and relationships, the framework contains six key elements: the social-cultural context; the structural and psychosocial influences; the student engagement; and the proximal and distal consequences. With student as the focus, each of the elements is comprised of several variables.

For antecedents of student engagement, the framework includes both the structural and the psycho-social influences. The structural influences come from both university and student, such as policy and assessment of the university and background and family support of the student. The psycho-social influences derive from university and student as well, but it focuses on educational practices of the university, motivation of the student, and relationship between the two. Moreover, the two types of influences are not independent from each other because the psychosocial influences are impacted by the structural influences. Therefore, it is important to realise that in this framework student engagement is not an outcome of any one of these influences but rather the consequence of the complex interplay among them (Kahu, 2013).

Placed in the centre of the framework, student engagement is defined as the combination of affect (e.g., enthusiasm and interest), cognition (e.g., deep learning and self-regulation), and behaviour (e.g., time and effort), which takes the psychological point of view.

There are proximal and distal consequences of student engagement in the framework. Both of them include academic benefits and social impacts, but the proximal consequences are more obvious and immediate than the distal ones. For example, the proximal consequences include leaning, achievement, satisfaction, and well-being, while the distal consequences are divided into work success, lifelong learning, citizenship, and personal growth.

Finally, the framework highlights influences of the broad social-culture context on every one of the five elements. Not only student engagement, but also its antecedents and consequences are embedded in the wider political and social discourses, such as culture, power, policy, and economics (Kahu, 2013). This distinguishing characteristic in the framework sheds great light on understanding research questions and concept model in the present study (see Chapter 1).

2.2.3 Definition and Dimensions of Study Engagement

Among various perspectives on student engagement noted above, the psychological perspective is adopted in the present study. The reason is that, according to the research purposes and questions (see Chapter 1), engagement is deemed in the current study as outcomes and consequences rather than antecedents. This understanding of engagement is in line with the essence of a psychological point of view. Therefore, the following sections will introduce details about the definition and measurement of engagement within the psychological perspectives.

In the literature consulted, a general difference in terming engagement of university students is observed between the educational research area and the psychological research field. In educational studies, researchers usually termed engagement as "student engagement"; whereas in studies in the area of positive psychology which aims to help individuals achieve a satisfactory life, engagement is commonly referred to as "study engagement". Considering the psychological perspective on engagement adopted in the present study, "study engagement" is used to replace "student engagement" in the current research to avoid confusion.

Study at university is a highly specialised activity for both undergraduates and postgraduate students. It shares many characteristics with working activities (Fang, Shi, & Zhang, 2008). In many psychology studies, therefore, the concept of study engagement for university students is borrowed from work engagement for employees. Review of the definition of work engagement will throw light on what is study engagement.

In Occupational Health Psychology, engagement is considered as the antipode of burnout (Schaufeli & Bakker, 2004a). As one of the positive aspects of health and well-being, engagement is characterised by capability and willingness (Schaufeli & Salanova, 2011). Moreover, engagement is demonstrated as a unique and standalone concept different from workholism, occupational commitment (Bakker, Schaufeli, Leiter, & Taris, 2008), job satisfaction, organisation citizenship behaviour and turnover intentions (Bakker, Albrecht, & Leiter, 2011).

Engaged employees, as believed by many psychological researchers, are those who feel vigorous and enthusiastic about their work, exert strong energy in the work, and identify themselves with the job. Therefore, in an earlier study conducted by Schaufeli, Salanova, González-romá, and Bakker (2002), the definition on work engagement is given as follows:

> "Engagement is a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication and absorption. Rather than a momentary and specific state, engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual or behaviour." (p. 74)

Although it is regarded as an operational rather than conceptual definition of engagement (Schaufeli & Salanova, 2011) and there seems no universal agreement on the meaning of work engagement, this definition has been widely adopted in many studies (e.g., Bakker et al., 2011; Hakanen, Bakker, & Schaufeli, 2006; Schaufeli & Bakker, 2004b, 2010; Schaufeli, Martínez, et al., 2002).

Consistent with the definition, there are three dimensions for capturing how employees experience their work: vigour, dedication, and absorption. Vigour means something stimulating and enjoyable in which people really want to devote time and effort; dedication refers to a meaningful and important pursuit; and absorption concerns the sense of belonging and something that they really want to be involved (Bakker et al., 2011). Among the three

dimensions, however, vigour (energy) and dedication (identification) are agreed to be the two core components (Bakker et al., 2011; Schaufeli & Salanova, 2011), both of which are comprised in the UWES scale discussed in the following section.

Accordingly, study engagement of university students can be similarly defined as a positive, fulfilling, and study-related state of mind that is characterised by vigour, dedication, and absorption. "Vigour is characterised by high levels of energy and mental resilience while studying, the willingness to invest effort in one's study, and persistence even in the face of difficulties (e.g., I can continue studying for very long periods at a time); dedication refers to being strongly involved in one's study and experiencing a sense of significance, enthusiasm, inspiration, pride and challenge (e.g., I am enthusiastic about my study); and absorption is characterised by being fully concentrated and happily engrossed in one's study, whereby time passes quickly and one has difficulties with detaching oneself from study (e.g., Time flies when I am studying intensely)" (adapted from Schaufeli and Bakker (2004b, pp. 5-6)).

2.2.4 Measurement: The Utrecht Work Engagement Scale for Students (UWES-S)

2.2.4.1 The UWES and Other Versions

Consistent with the above-mentioned definition and dimensions on engagement, the Utrecht Work Engagement Scale (UWES) is developed and validated by Schaufeli and Bakker (2004b) originally for measuring employees' work engagement. It becomes one of the most frequently used instruments to measure work engagement in occupational health psychology (Bakker et al., 2008) and "the most often used scientifically derived measure of engagement" (Bakker et al., 2011, p. 9). As Schaufeli and Salanova (2011) figured out, "83% of the Psyc INFO articles use this questionnaire [UWES]" (p. 40).

The UWES is a self-report scale which originally contains 17 items (hence called UWES-17) and three subscales, namely vigour, dedication, and absorption. Ever since it was created, the self-report scale has been translated into several different languages, and then been validated and/or applied in many countries across the world, such as the Netherlands, Germany, France, Finland, Norway, Sweden, Spain, Greece, Portugal, South Africa, Russia, Japan, and China as summarised by Schaufeli and Bakker (2004b) and Bakker et al. (2008). Most of these

studies, as concluded by Bakker et al. (2008), applied confirmatory factor analysis and supported the hypothesised model and the internal consistency of the scale.

However, several studies failed to replicate the three-factor structure of the UWES-17 scale (e.g., Shimazu et al., 2008; Sonnentag, 2003). Some pointed out that, in empirical research, the overall score of the scale could be more useful than the scores of subscales (e.g., Bakker et al., 2008; Schaufeli, Bakker, & Salanova, 2006). In other studies, the overall score was used (e.g., Sonnentag, 2003) and suggestion was proposed that "the fit of one-factor model is also acceptable" (Schaufeli & Bakker, 2004b, p. 28). In the manual for the UWES, the developers also admitted that, although the scale could psychometrically be divided into three dimensions, "for practical purposes the three factors might be collapsed into one score " because "the high correlations between the three dimensions and the high values for Cronbach's α for the total scale support a one-dimensional model" (Schaufeli & Bakker, 2004b, p. 30). Moreover, Schaufeli and Bakker (2004b) emphasised that, because of their strong correlations, the three subscales "should not be entered simultaneously in multivariate regression analyses" so as to avoid multicollinearity problems, and "as in such case [in multivariate regression analyses], the use of the total score is preferred" (p. 30).

As an alternative, the shortened version (UWES-9) contains 9 items derived from the UWES-17. The UWES-9 was found to be different from its full version in that the three-factor structure of the UWES-9 maintained relatively unchanged across different samples and over time (Seppälä et al., 2009). Therefore, the UWES-9 was recommended for future studies (Seppälä et al., 2009) and the total score of the nine items might be used as an indicator of work engagement in the future (Schaufeli et al., 2006).

2.2.4.2 The Utrecht Work Engagement Scale for Students (UWES-S)

While the UWES is used to measure work engagement of employees, the student version of the UWES (the Utrecht Work Engagement Scale for Students, or UWES-S) is adopted to gauge study engagement of students at the tertiary level.

Compared with the UWES, some expressions in the UWES-S have been modified by the developers in order to be consistent with students' work at university. For example, the original item "At my work, I feel bursting with energy" in the UWSE is replaced by "When I'm doing my work as a student, I feel bursting with energy" in the UWES-S.

The three subscales in the UWES-S-17, same as those in the UWES, are called vigour, dedication, and absorption. Respective interpretations of the three subscales in the UWES-S-17 are in line with meanings of the three dimensions of study engagement (See previous section). These interpretations are based on the definitions given by the developers for the three scales in the UWES.

Soon after it was established, the psychometric structure of the UWES-S-17 had been examined in university students sampled from different European countries by the developers (Schaufeli & Bakker, 2004b; Schaufeli, Martínez, et al., 2002). The internal consistencies of each subscale in the UWES-S-17 had been validated by Schaufeli and Bakker (2004b) with students sampled from Utrecht University. However, the three-factor structure of the UWES-S-17 scale was found not to fit well to the data. After removing 3 items, the three-factor model of the shortened version was supported by the data from each country sample (Schaufeli, Martínez, et al., 2002).

To summarise, Schaufeli and Bakker (2004b) suggested that the three-factor structure of the UWES-S-17 "does not fit very well to the data" (p. 22) in some studies and the shortened version with nine items (the UWES-S-9) was preferred over the UWES-S-17 in those cases. Nevertheless, the overall scale as well as subscales of the UWES-S in general could be applied to measure student engagement in higher education (Schaufeli & Bakker, 2004b).

2.2.4.3 The Chinese Version of UWES and UWES-S

The UWES was translated from English into Chinese by Zhang and Gan (2005) using the back translation method. According to the literature reviewed, the Chinese version of UWES was then applied into Chinese contexts (mainland China and Hong Kong) by some studies (Fang et al., 2008; Fong & Ng, 2012; Gan, Yang, Tian, & Yu, 2011; Siu, Bakker, & Jiang, 2014; Zhang & Gan, 2005; Zhang, Gan, & Cham, 2007).

In the study conducted by Zhang and Gan (2005), after deleting two items, the reliability and validity of the Chinese version of the UWES were tested in Chinese primary and secondary school teachers. The result was supported by a later study when the UWES was applied in another group of Chinese primary and secondary school teachers (Gan et al., 2011). Meanwhile, Gan et al. (2011) suggested that the shortened version of the Chinese UWES with nine items could be used in Chinese contexts in some empirical studies. When the UWES-S was administered to Chinese undergraduate and postgraduate students, similar

results indicated that the three-factor structure of the Chinese version of UWES-S fit well to the data (Fang et al., 2008; Zhang et al., 2007). In a later study, the psychometric properties of the Chinese version of the UWES were tested in Hong Kong with workers from over 30 elderly service units. The results showed that the three-factor structure of the UWES-9 fit the data better than the UWES-17 and the one-factor UWES-9 (Fong & Ng, 2012).

In the literature reviewed above, however, few studies applied the UWES to measure Chinese pre-service teachers' study engagement in teacher-training programmes. The present study is going to apply the Chinese version of UWES-17 to measure study engagement of pre-service teachers in mainland China. Considering the participants in the current study are different from other studies, such as the uniqueness of pre-service teachers' study engagement and the special characteristics of Chinese culture, the reliability and validity of the scale will be tested again when it is used in this study (see details in section 4.4 of Chapter 4).

2.2.5 Factors Influencing Study Engagement

Many factors related to sociocultural contexts, university environment, teaching staff, student background, and student motivation, according to Kahu's (2013) conceptual framework on study engagement reviewed above, had direct or indirect influences on university students' study engagement.

Some studies especially explored the correlations between study engagement and some psychological factors for university students. According to the results of an earlier study (Krause, 2005), students' expectations about university education before commencing their university studies could impact their study engagement at university. As the researcher pointed out, "those who enter the university environment with unrealistic expectations … tend to have greater difficulty engaging successfully" (Krause, 2005, p. 10). A later study in the context of Taiwan found a significant and positive correlation between learning confidence and study engagement of undergraduates (Gao & Wang, 2010). One study using the UWES-S in Dutch university students found that positive emotions (e.g., the feeling of inspired or relaxed) and personal resources (e.g., be optimistic, hopeful and self-efficacious about one's future and study) could predict high level of study engagement, and vise versa (Ouweneel, Schaufeli, & Le Blanc, 2011). In another study applying the UWES-S in university students from Hong Kong, Siu et al. (2014) found that "student engagement and intrinsic motivation were separate construct[s]" (p. 991). Moreover, intrinsic motivation was

found to play two roles in the study (Siu et al., 2014): it was the predictor of study engagement, and the mediator of the reciprocal relationship between study engagement and psychological capital (such as self-efficacy, resilience, hope, and optimism).

Additionally, when the UWES scale was applied in workers and employees, some factors were found to be correlated with their work engagement. In the manual of the UWES where data from different countries were compared, the researchers observed weakly positive relationship between work engagement and age (Schaufeli & Bakker, 2004b). Moreover, Schaufeli and Bakker (2004b) found that although males had statistically significantly higher work engagement than that of females, it had no practical significance due to the small effect size. The influence of nation and occupation on work engagement was also discussed by Schaufeli and Bakker (2004b), but due to the fact that the international data available were composed of multiple occupations from different countries, it was difficult for researchers to ascertain the independent effect of country and occupation. In another study, employees' engagement was found to be a unique concept which was able to be predicted by personal resources and job resources (Bakker et al., 2008). A later study further explained that the resources related to employees themselves (personal resources) including their optimism, self-efficacy, and self-esteem could facilitate them to deal with tasks in daily work; and the resources that are rich in work environment (job resources), such as autonomy, training opportunities, and performance feedback, were able to foster work engagement especially when work demands were high (Bakker et al., 2011).

In the present study, influence of some demographic and background factors of Chinese policy-funded pre-service teachers (PFPTs) on their study engagement in a teacher-training programme will be tested and analysed (see section 4.7 of Chapter 4 for details). These factors include gender, ethnicity, home region, family income, year of study, and National College Entrance Examination scores of the PFPTs.

2.2.6 Implications of Study Engagement

Study engagement was usually found to be a key factor for college students' study success and academic achievement (e.g., Bakker et al., 2015; Schaufeli, Martínez, et al., 2002). For example, in the study among university students from multiple European countries, academic performance was found to be positively related to study engagement but negatively related to burnout (Schaufeli, Martínez, et al., 2002). In addition, engaged teachers were found to be

more likely to achieve educational goals and to arouse pupils' interest, curiosity, and excitement in learning (Hakanen et al., 2006).

Considering its significance in education, some studies have explored the possible approaches to improving study engagement of students (e.g., Taylor & Parsons, 2011; Zepke & Leach, 2010). From existing literature, Taylor and Parsons (2011) summarised some successful themes and ideas on curriculum and pedagogy that teachers could apply in their teaching practice to encourage students' engagement. These useful ideas included respectful relationship and interactions in embedded collaboration, problem-based learning, using multimedia and technology, adopting engaging and challenging instruction to make learning interdisciplinary and relevant to real life, and assessment for learning. In another systematic and strategic review on student engagement at tertiary level, Zepke and Leach (2010) developed a conceptual organiser, which identified four perspectives on engagement. According to the conceptual organiser, the researchers proposed ten suggestions to improve student engagement. These ten proposals for action included increasing students' self-belief; enabling students to do self-study, feel confident and enjoy leaning relationships with others; understanding the importance of teachers and teaching; creating supportive and collaborative learning environment; developing diversified, challenging, and educational experiences to extend academic ability; creating inclusive campus culture; providing various supporting services; meeting students' expectations; encouraging students to be active citizens; and equipping students with cultural and social capitals (Zepke & Leach, 2010).

In work places other than educational institutions, engagement of employees was also found to be significant. As suggested by Salanova and Schaufeli (2008), work engagement could mediate the impacts of job resources (i.e., job control, feedback, and task variety) on employees' proactive behaviours in a changing technological environment. In their another work from a social exchange perspective, Schaufeli and Salanova (2011) tended to agree with the possibility that work engagement could lead to burnout when the balance of "giving" and "taking" was disturbed or broken. In a later study on Chinese health care professionals, researchers found that high levels of work engagement were mainly characterised by high levels of intrinsic motivation, whereas high levels of burnout are mainly correlated with low levels of intrinsic motivation (van Beek, Hu, Schaufeli, Taris, & Schreurs, 2012). Moreover, work engagement was found by Seppälä et al. (2009) to be a stable indicator of occupational wellbeing. This was echoed by a most recent study which found that engagement and mental health could predict each other over time (Reis, Schröder, & Hoppe, 2015).

2.3 The Government-Funded Teacher Education Policy: Studies in Mainland China

Since it has been implemented in September 2007, the Government-Funded Teacher Education Policy (GFTEP), as a trial teacher-training programme with unique Chinese features, has created a magnetic research domain which constantly attracts the attention of educational researchers in mainland China. Issues related to the funding policy, along with education for migrant workers' children and educational equity, have become the most popular research topics in the field of educational policy (Sun, 2011). An increasing number of studies on this policy have been conducted in recent years. According to the data in the China National Knowledge Infrastructure (CNKI), approximately 3,000 journal articles, theses, and conference proceedings had been published in Chinese from 2007 to 2014 focusing on the funding policy or the policy-funded pre-service teachers (PFPTs).

2.3.1 Research Themes and Trends

Revolving around the Government-Funded Teacher Education Policy, themes of studies have some trends according to the findings of several literature reviews (e.g., Sun & Chu, 2008; Sun, 2011; Wang, Xu, Li, & Li, 2013; Zhao, 2012). The earlier studies published before 2008 mainly discussed reasons for and significance of launching this policy, measures for implementing it, ensuring its equity, and expectations on its outcomes (Sun & Chu, 2008). Sun and Chu (2008) also pointed out that more studies were in need on researching loopholes in the policy and future development of the policy. A later review on studies published from 2007 to 2010 (Sun, 2011) found that the funding policy had generated a lot of research interest in the educational policy research area. Those studies analysed significance of the policy and provided important information for how to improve the policy; however, few of them examined consequences or effects brought along by implementing the policy (Sun, 2011). Another review found that related master-degree theses conducted in 2009 and 2010 mainly explored two themes: one was the policy-funded pre-service teachers' learning attitudes, initiatives, and motivation; the other was the their professional identity and professional satisfaction (Li et al., 2013). According to findings of a comprehensive review on studies related to this policy published from 2007 to 2012 (Wang et al., 2013), four research domains seemed dominant: employment issues of the policy-funded pre-service teachers, their professional identity, curriculum provision for them, and development of the Government-Funded Teacher Education Policy.

Additionally, a review focusing on methodology concluded that the major research methods applied in those studies included discourse analysis, historical analysis, and quantitative research (Zhao, 2012). Researchers emphasised different ideas guided by different methods. From the perspective of discourse analysis, two concepts were proposed – "free teacher education" and "government-funded teacher education". By historical analysis, researchers argued for a historical division on China's teacher education from both historical and social political points of view. In the studies that applied quantitative methods, researchers analysed psychological characteristics and perceptions of the policy-funded pre-service teachers. Zhao (2012) argued that the concept of "government-funded teacher education" was much more appropriate and clearer, and suggested that future studies should adopt a more structured content analysis and more comprehensive research methods to deepen people's understandings of this policy.

2.3.2 Studies Related to Career-Choice Motivations of Policy-Funded Pre-service Teachers

Among the studies in mainland China consulted, no study has been found to focus on career-choice motivations of the policy-funded pre-service teachers (PFPTs). However, some studies explored several topics which are closely related to career-choice motivation, such as motivations to enter the government-funded teacher-training programmes (e.g., Li, 2010; G.-F. Li, 2011; Li et al., 2013; L.-L. Liu, 2009; Wang, 2011; Wu & Liu, 2008; Yao & Dong, 2009; Yao, Ma, & Li, 2012) and teaching-profession identity of the PFPTs (e.g., Fan, 2010; Feng, Jiang, Du, & Gao, 2010; Zhao, Qi, Zhang, & Lvqiu, 2011). These studies are briefly reviewed as follows. Findings of such studies will give some hints for interpreting results of the present study, which will be discussed in Chapter 6.

PFPTs' motivations to choose the government-funded teacher-training programmes were examined by several studies with participants from different universities implementing the funding policy. An earlier study (Wu & Liu, 2008) surveyed 85 policy-funded pre-service teachers from East China Normal University and found that 69% of them chose teaching programme due to economic reasons. In a master-degree thesis (L.-L. Liu, 2009), the researcher found that motivations for the PFPTs to enrol in Southwest University were: personal identity, social incentive, employment-occupational factors, and the impact of others. These motivations were found to be different between gender and subjects, and social incentive was found to be the strongest one (L.-L. Liu, 2009). Two later surveys (Li, 2010;

G.-F. Li, 2011) explored enrolment motivations of the PFPTs from Shaanxi Normal University, and the results both showed that the most significant motivations for those PFPTs to enter government-funded teacher-training programmes included: employment is guaranteed, university fees and costs are waived and compensated, and teaching dreams can be fulfilled. For the motivation of getting government funding for university fees and costs, one of the studies (G.-F. Li, 2011) further found that the male PFPTs rated it significantly higher than their female counterparts, and the PFPTs from rural-area families rated it significantly higher than those from urban areas. For the motivation of realising the dream of teaching, however, the study showed that it was generally rated as the weakest one by all the participants (G.-F. Li, 2011). Another study (Wang, 2011) investigated over 700 pre-service teachers from a policy university in northeast China and showed that the majority chose the government-funded teacher-training programmes because they loved the teaching profession.

Some studies surveyed pre-service teachers from all the six teacher-training universities implementing the funding policy. For example, a study (Yao & Dong, 2009) sampled 532 PFPTs from all the six universities carrying out the policy and investigated their perceptions about teaching and enrolment motivations. The results showed that 42.7% of them emphasised the stability of teaching profession and only 29.9% regarded it as their future career orientation (Yao & Dong, 2009). Moreover, 35.3% of them chose the government-funded teacher-training programmes due to "economic reasons", 15.8% chose it for "employment reasons", and only 21.4% chose it out of their personal aspiration (Yao & Dong, 2009). Based on these findings and other background information, Yao and Dong (2009) concluded that family income of the PFPTs had significant impacts on their motivation to enrol in the government-funded teacher-training programmes, and for those with poor family background, they usually placed a high emphasis on "tuition-free education" and ignored their personal interest and aspiration in teaching when deciding to enrol in these government-funded teacher-training programmes. Another study conducted by Yao et al. (2012) investigated approximately 600 PFPTs from all the six teacher-training universities carrying out the policy. It found that the PFPTs' enrolment motives were significantly related to their family economic conditions and household registrations; and with the increase of year of study at university, the economic reasons for choosing teaching profession become more significant while their teaching aspiration become weaker (Yao et al., 2012). Therefore, Yao et al. (2012) suggested to reform teacher-training curriculums at universities so as to enhance professionalization of pre-service teachers.

A later survey (Li et al., 2013) showed that the Chinese pre-service teachers attracted by the Government-Funded Teacher Education Policy were mainly female and from poor rural areas. It found that the provisions about tuition waiving and employment guarantee in the funding policy had great attraction for many rural families. Members in those families usually had low income, low social status but great concerns for their children's employment after graduation (Li et al., 2013). However, the study (Li et al., 2013), in line with another study (L.-L. Liu, 2009), suggested that although the advantages provided by the funding policy had drawn great attention of the PFPTs' families, the economic benefits of the policy were not the most important reason for the PFPTs to choose the teacher-training programmes of the universities carrying out the policy. Based on their findings, the researchers (Li et al., 2013) provided several recommendations for improving the funding policy: clarifying the provisions in the policy so that parents, students, and the public can make a considered choice; recommending the policy to the students having high intrinsic motivation to teach; advertising the policy in the poor rural areas; diagnosing students motivation to teach at the beginning of the teacher-training programmes; establishing development-trace profiles of the PFPTs; and designing effective curriculums to channel students' motivation to teach to the right direction.

Teacher professional identity of the PFPTs is discussed by some studies from different perspectives. An earlier study (Y. Liu, 2009) sampled 344 PFPTs from Southwest University, and found that the PFPTs' teacher professional identity was generally high, but they were not satisfied with school leadership, teaching environment, and teachers' salary. Moreover, female PFPTs were found to have a higher satisfaction level for the teacher profession than their male counterparts, and enrolment motivation of the PFPTs was found to be related to their professional identity (Y. Liu, 2009). Through interviews and talks with teacher educators and college advisors, Fan (2010) concluded some problems faced by the PFPTs, such as feeling uncertain about their future career development, worrying about the low income of the teaching profession, lack of learning motivation, and having a low self-confidence.

The characteristics of teaching professional identity of the PFPTs were explored by several studies (e.g., Feng et al., 2010; Zhao et al., 2011). Results of one study showed that professional identity of the PFPTs from Beijing Normal University was positive, and through pursuing the teaching profession, the PFPTs hoped to achieve professional aspiration, strengthen personal interest, and maintain harmonious family relationship (Feng et al., 2010).

Moreover, professional identity of the PFPTs was affected by both educational policy (personal understanding about policy and benefits brought about by policy) and important others (e.g., parents, friends, and teachers), and male PFPTs had a lower level of teaching professional identity than their female counterparts (Feng et al., 2010).

In another study (Zhao et al., 2011), a three-dimension model was proposed and confirmed to measure teacher professional identity of the PFPTs. The three dimensions included intrinsic value identity (e.g., personal interest in teaching, sense of professional value, sense of achievement by teaching), extrinsic value identity (e.g., teachers' salary, social status of teaching, and working condition), and volitional behaviour identity (e.g., paying attention to educational policies, reading books about teachers and teaching, and attending teacher-training activities). According to the quantitative results of the study (Zhao et al., 2011), the PFPTs had higher level of intrinsic value identity than extrinsic value identity, and volitional behaviour identity was the lowest. Moreover, female PFPTs had a higher level of teaching professional identity in every dimension of the model compared with the males, and the PFPTs' rating on their teaching identity gradually decreased with the increase of their year of study at university.

2.3.3 Research on Study Engagement of Policy-Funded Pre-service Teachers

The policy-funded pre-service teachers' (PFPTs) study engagement was discussed by several studies in mainland China. In these studies, two major questions were explored: what are the differences in strength of study engagement between the PFPTs and other university students (e.g., Chen, 2013; Ji, Qi, & Lu, 2011; Zhao, 2013), and what are the relationships between study engagement and other factors of the PFPTs (e.g., Chen, 2013; Luo, 2013; Zhao, 2013).

Research findings seem different to the first question about the PFPTs' study engagement. An earlier study (Ji et al., 2011) surveyed the PFPTs and other undergraduates (non-education major students) from the same university with a self-developed questionnaire, and found that the PFPTs rated significantly higher in two dimensions of study engagement than other undergraduates: their self-requirement on study and their feeling about the significance and value of study. The finding of another study applying the UWES-S scale (Schaufeli & Bakker, 2004b), however, showed that the PFPTs had a lower level of study engagement than non-education-major undergraduates, especially in the dimension of "dedication" (Chen, 2013).

Moreover, in a master-degree thesis (Zhao, 2013), the UWES-S scale was administered to 459 year-one to year-three students from two universities. The results showed that, compared with self-sponsored pre-service teachers, the PFPTs had a higher level of study engagement in all three dimensions, and the difference was significant in the dimensions of "vigour" and "absorption" (Zhao, 2013).

The relationships between the PFPTs' study engagement and other factors including demographic information were discussed in several studies. Zhao (2013) found study engagement of the PFPTs was significantly correlated with their professional commitment and professional maturity; Chen (2013) concluded that the PFPTs' study engagement could be predicted by their future orientation and professional identity; Luo (2013) found that falling in love did not influence the PFPTs' study engagement. Some of those studies (e.g., Chen, 2013; Ji et al., 2011; Zhao, 2013) also explored study engagement of the PFPTs with different demographic information. No significant difference in study engagement was found between male and female PFPTs by Zhao (2013) and Chen (2013), but in the study conducted by Ji et al. (2011), female PFPTs were found to have a significantly higher level of study engagement than their male counterparts. Moreover, the PFPTs' study engagement was not influenced by their year of study at university (Ji et al., 2011; Zhao, 2013), or their home provinces (Ji et al., 2011).

Summary

This chapter reviewed studies in three content areas: teachers' career-choice motivations, study engagement in higher education, and the Government-Funded Teacher Education Policy (GFTEP) in mainland China. Various issues under each content area and relevant to the current study were discussed. From this literature review, some research gaps are revealed. The following is a summary of these gaps within each content area.

The review on studies published in mainland China about the funding policy reveals that few studies directly explored career-choice motivations of the policy-funded pre-service teachers (PFPTs), and limited studies examined the PFPTs' study engagement in the teacher-training programmes. Moreover, according to the studies consulted, no studies explored the impacts of the funding policy on career-choice motivation and study engagement of the PFPTs. The present study is therefore expected to add some new information in these areas.

Study engagement at tertiary level is regarded as a critical issue for undergraduates' academic success in many studies. This review shows that study engagement is a complicated and even elusive concept because different research perspectives have dissimilar understandings of it. However, when it is perceived as a consequence from the psychological research perspective, study engagement becomes a more approachable concept with a clear definition and well-structured dimensions. Under this perception, some studies explored the relationship between study engagement and other psychological factors. However, it seems that few studies have examined the correlation between study engagement and career-choice motivation of pre-service teachers, and more attention should be paid to explore which factors could influence study engagement. Both of the two issues will be explored in the present study.

The review on studies of teachers' career-choice motivation suggests that research in this content area has experienced some changes in the past half century in regards to research methodology and research focus. Early studies were mainly empirical reports which explored motivation profiles of specific contexts using relatively small-scale diversified surveys. As pointed out by Wang and Fwu (2001), one of the shortages in this field was that few studies probed into the complex and dynamic process about how individuals developed their motivations to teach; therefore, in-depth and dynamic approaches to explore the underlying motives of promising students to teach were in need. These approaches included applying in-depth open-ended interviews as the method of inquiry (Corbin & Strauss, 1990; Glaser & Strauss, 1968). In later studies, however, cross-context designs and qualitative inquiries had gradually attracted researchers' interest and been applied by some researchers.

Current teacher motivation research seems to enter a new era when some theoretically grounded instruments, such as the FIT-Choice scale, have been developed and validated in different contexts. International comparative studies become feasible and popular, and both quantitative and qualitative approaches are applied to explore the complexity and richness of teacher motivation. Meanwhile, researchers' interest has expended beyond exploring motivation profiles to probing correlations between teaching motivation and other related areas such as teaching commitment, job satisfaction, and professional development.

However, most studies explored the relationship between pre-service teachers' career-choice motivation and their 'planned' factors related to future classroom teaching (e.g., Losh & Wilke, 2008; Saban, 2003). As few of them conducted longitudinal follow-ups, these findings are still open for questions, which can only be tested when those pre-service teachers become

in-service teachers. Moreover, it appears that some significant questions, such as "how we can influence the motivation for becoming a teacher" (Fokkens-Bruinsma & Canrinus, 2014, p. 73), has not been touched by the existing studies.

The present study is trying to reduce the two deficits to some degree. Instead of predicting future unstable outcomes, it focuses on the correlations between pre-service teachers' career-choice motivation and their current study engagement in teacher-training programmes. As some early psychological studies indicated that motivation was able to promote school students' continuing and useful engagement in a task or an activity (Ames, 1992; Barker, McInerney, & Dowson, 2002), the findings of the present study are expected to shed light on understanding the effects of pre-service teachers career-choice motivation on their study engagement at university-based teacher education level. Moreover, the research purpose of the present study is to explore the impacts brought about by the Government-Funded Teacher Education Policy on pre-service teachers' career-choice motivation. No similar studies were found from this literature review. The results of the present study are therefore expected to add some evidence to fill the gap existing in the current literature about how teachers' career-choice motivation would be influenced.

CHAPTER 3: RESEARCH METHODOLOGY

Introduction

This study explores the impacts of the Government-Funded Teacher Education Policy on Chinese pre-service teachers' initial career-choice motivation and their current study engagement in teacher training programmes. As stated in Chapter 1, the overarching research question was "Does the funding policy impact career-choice motivation and study engagement of Chinese pre-service teachers, and how?" This general question was further unpacked by nine quantitative and two qualitative sub-questions (see section 1.6 in Chapter 1).

The funding policy, currently at its trial stage, has been implemented in the six national top teacher-training universities subordinated to the Ministry of Education in P.R. China from 2007. Other teacher-training universities do not carry out this funding policy at the trial stage[9]. This makes it feasible for the present study to conduct comparisons between students from the two groups of universities. The differences between the policy-funded pre-service teachers and their self-sponsored counterparts in terms of teaching career choice motivation and study engagement could suggest the impacts of the funding policy.

To achieve this research purpose in the current context of implementing the funding policy, the present study mainly applied quantitative approaches as the base to statistically analyse the impacts of the funding policy. Then, a qualitative study was carried out as an add-on to further interpret the quantitative results. As existing literature suggested, applying both quantitative and qualitative methods in studies to explore teaching motivation could not only provide meaningful depth but also facilitate understanding of the uniqueness of some types of career-choice motivation (Wong et al., 2014).

3.1 Research Design

The quantitative study was designed for exploring the overarching research question described above. This comprised a questionnaire with five sub-scales which was administered to over 700 Chinese pre-service teachers from three teacher-training universities. One university was implementing the funding policy, while the other two were not. Following

[9] Jiangxi Normal University, co-funded by the Ministry of Education and the Jiangxi Provincial Government, has carried out this funding policy since 2013 with some of the policy terms changed, such as no allowance for students and recruiting candidates from Jiangxi province only.

scale-development procedures involving factor analytic techniques, levels of career-choice motivation and study engagement produced by the pre-service teachers from the policy university were compared with those from the two non-policy universities.

The quantitative design generally followed three major steps. Firstly, it collected data from the teacher training universities carrying out the funding policy and from their counterparts without implementing the policy respectively. Secondly, the data gathered from the two groups of teacher training universities were compared in terms of teaching career choice motivation and training engagement. Statistically significant differences between the university groups were sought to determine the potential impacts of the funding policy on Chinese pre-service teachers. Lastly, the data about the policy-funded pre-service teachers' attitudes towards the policy, their perceptions about teaching, and their decision to become a teacher were analysed to further investigate the students' views about the policy and teaching.

The qualitative design, acted as a follow-up approach to the quantitative study, was an online audio interview with some policy-funded pre-service teachers who originally participated in the survey. An interview outline was developed to collect data online. Based on initial quantitative results, participants with different levels of satisfaction with the funding policy were sampled. Finally, narrative stories about participants' personal experiences were compiled in order to explore the complexity and richness of their motivations for choosing teaching as a future career and their study engagement in the teacher-training programmes, which added an additional layer to the quantitative findings.

3.2 Pilot Study

The main purpose of the pilot study in the quantitative study was to test the effectiveness of the survey instruments in the Chinese context and the appropriateness of their Chinese translations. Applying the software of SurveyMonkey, the pilot study was conducted online in October 2012 following several steps. Firstly, the initial Chinese versions of these scales were put online through SurveyMonkey. Following each item on these scales, a comment box was created for feedback on the explicitness and suitability of the item. Then, an invitation email was sent out to nine Chinese native speakers which stated the purpose of the pilot study and attached the links of these online scales. Among them, eight participants – six postgraduates, one undergraduate, and one school teacher – completed the pilot study. Finally,

feedback and suggestions in the comment boxes were analysed, and adjustments were made to the initial scales which were detailed as follows.

These modifications included changing some Chinese translations of the FIT-Choice scale (see Appendix 7), removing additional question items from the UWES-S-17 scale (see Appendix 10), and adding more questions to the demographic section of the whole questionnaire (see Appendix 6). Firstly, seven types of reasons (see Table 1, and see Appendix 8 for the detailed reasons) were summarised from comments of participants in the pilot study which suggested that the original Chinese translations (Lin et al., 2012) of 26 items in the FIT-Choice scale needed to be adjusted. The comparisons between the original and the present Chinese translations for the 26 items and the corresponding reasons for changing each item were presented in detail in Appendix 8.

Table 1: Reasons for Modifying Chinese Translation of 26 Items in the FIT-Choice Scale

	Reasons for changing	Items
1	Adapting to Chinese context of present study	B2, B32
2	Correcting grammar mistakes	B8, B37
3	Amending collocation errors	B9, C1, C9
4	Keeping conformity through the whole questionnaire	B27, C1 to C14, D1 to D6
5	Deleting unnecessary adverbs of degree	C2, C6, D4
6	Exchanging inappropriately placed translations	C5, C11
7	Avoiding repetition	C13, D3, D5

Secondly, the four additional question items (see Appendix 9) originally added by the researcher to the UWES-S-17 scale were deleted according to the feedbacks from participants in the pilot study. They generally stated that it was very difficult to accurately calculate how much time they spent on each activity. So, their responses could be a rough estimate which may impact the reliability of the data. In addition, several participants complained about the large number of question items. So it was decided to remove the four items and to keep the UWES-S-17 scale.

Lastly, some participants commented that the demographic section did not cover enough information about the participants. So, after consulting the literature reviewed in this study (see Chapter 2), more demographic information was added to the whole study instrument,

such as ethnicity, family income, National College Entrance Examination scores, school level, and school subject.

In addition, a minor pilot study was conducted in November 2013 to test the effectiveness of the interview outline (see Appendix 12) designed by this study. Four PhD students majoring in Education – two Chinese native speakers and two English native speakers – were invited to participate in the pilot study. Each of them was interviewed face-to-face by the researcher for around one hour in a research office. During the interviews, the researcher wrote down any problem about the self-designed interview outline. At the end of each interview, the interviewee was asked about their suggestions for improving the interview outline. Minor changes were made to the wording of some questions in the outline after the pilot study.

3.3 Research Tools

3.3.1 Survey Instruments

The survey instrument in the present study was a self-reported questionnaire. In addition to a brief introduction stating the survey purposes and the ethical considerations, two major sections were contained in the questionnaire. The first section (see Appendix 6) asked participants to report their demographic information, such as gender, ethnicity, hometown, year of study, home province, age, family income, National College Entrance Examination scores, discipline, type of university, school level to teach, and subject to teach.

The second section was the main body which was comprised of three Likert-type (1 to 7) self-reported scales: the FIT-Choice scale (containing three sub-scales), the UWES-S-17 scale, and the researcher self-designed GFTEP-S scale. At the beginning of each scale, there was an introduction about the purpose of the scale, and the specific meaning of each number in the Likert scale which needed to be selected to complete the survey.

The entire questionnaire ended with an invitation for participants to take part in further online interviews. Contact information (QQ[10] account and email address) was asked to be left if participants agreed to be involved in the interviews.

[10] QQ is an instant messaging software service developed by Chinese company Tencent Holdings Limited.

3.3.1.1 The FIT-Choice Scale

Guided by the Expectancy-Value Theory (e.g., Eccles & Wigfield, 1995; Wigfield & Eccles, 2000), the Factors Influencing Teaching Choice scale (FIT-Choice Scale) was developed by Watt and Richardson (2007) to exam pre-service teachers' motivations to choose teaching as a future career (see section 2.1.3 in Chapter 2 for details). The FIT-Choice scale was composed of 58 items in three sub-scales (see Appendix 7): the Career-Choice Motivation (CCM Scale, 38 items), the Perceptions about Teaching (PAT Scale, 14 items), and the Decision to Become a Teacher (DBT Scale, 6 items). It was empirically validated in Australian context where the scale showed "sound convergent and divergent construct validity and good reliability" (Watt & Richardson, 2007, p. 195). It was then mainly applied in western contexts by other researchers (e.g., Kilinc et al., 2012; Lin et al., 2012; Richardson & Watt, 2006; Watt & Richardson, 2008; Watt et al., 2012).

After receiving the permission to use the FIT-Choice scale (see Appendix 4), the present study carried out a pilot study (see section 3.2 for details) to try out its Chinese version (Lin et al., 2012). Some changes were made to the Chinese translation (see Appendix 8) according to results of the pilot study. It was then administered to the Chinese pre-service teachers to collect quantitative data to explore their teaching career choice motivations, their perceptions about teaching, and their satisfaction with the choice of teaching.

During quantitative data analyses (see Chapter 4), the exploratory factor analysis was conducted to the FIT-Choice scale in the present study for several reasons. Firstly, the factor structure of the FIT-Choice scale validated in western contexts may not be adapted to the Chinese context. Secondly, some studies suggested that the FIT-Choice scale needed to be modified in order to cater for different research purposes (see section 2.1.3.3 in Chapter 2). Thirdly, the changes made to some of the original Chinese translations (see Appendix 8) suggested the original reliability and validity of the scale may need to be re-examined. In addition, the exploratory factor analysis was able to reduce the information shared by many original variables into a smaller set of factors or dimensions "with a minimum loss of information" (Hair, Black, Babin, & Anderson, 2010, p. 96).

3.3.1.2 The UWES-S-17 Scale

The UWES-S-17 scale (see Appendix 10) was the student version of the Utrecht Work Engagement Scale with 17 items (UWES-17) developed and validated by Schaufeli and Bakker (2004b). The UWES-17 scale was comprised of three sub-scales – vigour, dedication, and absorption – based on the developers' definition of work engagement as a positive, fulfilled, work-related state of mind.

At the beginning of the scale, there were instructions detailing the meaning of the numbers (1 to 7) used for each item on the scale. Those numbers represented the frequency from "never (1)" to "every day (7)" for a particular feeling experienced by a participant.

The Chinese version of the UWES-S-17 scale was administered to Chinese pre-service teachers in order to measure their study engagement level in teacher training programmes. The scale was originally translated and validated in 267 Chinese undergraduates and postgraduates by Fang et al. (2008). However, as study engagement of the policy-funded pre-service teachers could be different from that of other university students, the method of exploratory factor analysis was applied in this study to exam the reliability and validity of the scale (see section 4.4 in Chapter 4).

3.3.1.3 The GFTEP-S Scale

The Government-Funded Teacher Education Policy Satisfaction scale (GFTEP-S Scale, see Appendix 11) was designed in the present study following three steps. Firstly, the original Chinese document of the funding policy publicised by Chinese governments (see Appendix 5 for the Chinese version) was translated by the researcher into English (see Appendix 5 for the English version) to facilitate the English speaking supervisors' understanding of it. Then, fourteen main terms were summarised from the funding policy based on discussions with supervisors. Each term was presented as an item in the GFTEP-S scale in Chinese. Lastly, participants were asked to rate their satisfaction levels with each of the 14 terms in the scale. The Likert scale ranged from 1 (not at all satisfied) to 7 (extremely satisfied) in order to maintain the consistency of the measurement across all the survey instruments.

Data collected by the GFTEP-S scale were expected to answer two quantitative research questions: What is the level of policy-funded pre-service teachers' satisfaction with different

terms of the funding policy, and can these pre-service teachers be categorised into different groups according to their policy satisfaction levels? Given these groups were identified, these data could further assist exploring career-choice motivation and study engagement within each identifiable group, and sampling participants from each group to represent different policy-funded pre-service teachers for the interview.

3.3.2 The Interview Outline

The semi-structured interview outline was designed for the purposes of exploring the complexity and richness of different policy-funded pre-service teachers' teaching career choice motivation and their study engagement in teacher training programmes, as well as their perceptions towards the funding policy. The outline (see Appendix 12) was comprised of eight questions, some of which were followed by sub-questions. These questions could be categories into five major types: (1) background information, such as major and personal interest (more demographic information could be found from their reports to the previous survey instruments); (2) reasons for choosing teaching career; (3) perceptions about teaching; (4) study engagement in teacher training programmes and reasons; (5) comments on the funding policy especially on the restrictive policy terms. The sub-questions were asked to extend and deepen the understanding of participants' responses. As a semi-structured interview, impromptu questions beyond the outline were asked when the researcher regarded them as necessary.

3.4 Recruiting Participants and Collecting Data

In this study, 712 Chinese pre-service teachers were recruited in the quantitative study and seven policy-funded pre-service teachers were involved in the qualitative study. The quantitative data collection was conducted from May to June 2013 by implementing the survey among the first-year and the last-year pre-service teachers undertaking their bachelor degrees in three teacher-training universities in China. Following the quantitative data collection, the qualitative data were collected through online audio interviews from January to February 2014 with seven policy-funded pre-service teachers who previously participated in the survey.

3.4.1 Criteria for Recruiting Participants for the Quantitative Study

Two criteria were applied for recruiting participants in the quantitative study. The first was that the participants must be pre-service teachers in their first year or in their last year undergraduate studies. So the researcher only approached these two groups of pre-service teachers in each university. The second was that the targeted participants should be pre-service teachers from one of the three teacher-training universities in China: SWU, HNNU, and NJNU. Located in Chongqing Municipality, the SWU was implementing the funding policy. The other two universities – the HNNU and the NJNU – were located in Hunan Province and Sichuan Province respectively, and they were not carrying out the funding policy. The locations of the three universities were all in the less developed southwest or centre part of China; however, the pre-service teachers sampled from them came from all over the country (see the demographic information of participants in section 4.2.2 of Chapter 4).

As introduced in Chapter 1, there were six national top teacher-training universities carrying out the funding policy. This study selected SWU mainly for three reasons. Firstly, as a policy university, SWU enrolled high-school graduates from provinces all over China as pre-service teachers. Secondly, the number of pre-service teachers in SWU was the largest among the six policy universities (D.-X. Li, 2011; Wei, 2007). Thirdly, the national university ranking for SWU was in the middle among the six policy universities (Chinese University Alumni Association, 2014). Thus, participants from SWU could have a reasonable representativeness of policy-funded pre-service teachers in China.

3.4.2 Collecting Quantitative Data

The researcher went back to China in March 2013 to begin a four-month data collection in the three targeted universities (SWU, HNNU, and NJNU). The researcher contacted the Vice-President of SWU, the Deputy Dean of School of Education Science at HNNU, and the Dean of College of Computer Science at NJNU who expressed their kind intentions to facilitate this study. Information sheets and consent forms were then sent to each of them to ask for the permission to access their university to conduct this study. After receiving their signed consent forms Appendix 3, the researcher firstly entered into SWU in Chongqing Municipality and collected data for one month (May 2013). In June 2013, the researcher travelled to Hunan Province and conducted data collection in HNNU for another one month.

Meanwhile, due to time constraints, one staff at NJNU was helping the researcher to collect data from NJNU in Sichuan Province for one month (June 2013).

On arriving at the campus of each university, the researcher consulted the university curriculum schedule, and then randomly selected from the schedule ten classrooms where the first-year and the last-year pre-service teachers from different colleges of the university were taking courses. Before entering a classroom, the researcher showed the course lecturer of the class the information sheet and the consent form, and received their signed consent form to conduct the survey. Then, based on the principle of voluntary participation, the researcher delivered the questionnaire as well as the information sheets and the consent forms to the pre-service teachers in the classroom. After about 25 minutes, those volunteering to participate had completed the questionnaire, which was then returned to the researcher.

Altogether, 782 questionnaires were delivered among pre-service teachers in the three universities and 717 were returned. Of those returned, 328 included contact information indicating agreement to take part in the further online interviews (see Table 2). These participants were from different colleges of each university and studying various majors, which means after graduation they were going to teach diversified subjects in primary or secondary schools. As five returned questionnaires had one or more uncompleted sections and they were excluded, the number of the final valid respondents for the survey was 712. Therefore, the data collection has a response rate of 91.7%. All data from the 712 gathered questionnaires were put into SPSS 22.0 files for further quantitative data analyses (see Chapter 4).

Table 2: Number of Gathered Questionnaires by University, Year of Study, and Major

University	Year of Study	Major	Questionnaire Returned	With Contact Information
SWU	1st Year	Math	6	5
		Education(Primary and Special Education)	62	41
		Chemistry	30	14
		English	66	50
	4th Year	General Education	47	14
		Computer Science	16	6
		Chinese	28	10
		Politics	44	24
		Chemistry	12	8
HNNU	1st Year	General Education	39	18
		Geography	31	16
		Math	37	5
	4th Year	Mixed majors	38	6
		General Education	38	20
NJNU	1st Year	Chinese	30	8
		Physics	28	19
		Math	15	8
		Physical Education	9	9
		Computer Science	13	8
		English	19	2
	4th Year	Math	23	11
		Geography	14	4
		Computer Science	5	1
		Biology	10	1
		English	57	20
		Total	717	328

3.4.3 Collecting Qualitative Data

The qualitative data collection was completed following several steps. Firstly, the contact information of pre-service teachers who would like to further participate in the online interviews was obtained. At the end of the questionnaire survey, participants were required to leave their contact information for online interviews if they agreed to participate. As a result, 328 pre-service teachers left their contacts (see Table 2). Among them, however, 156 self-sponsored pre-service teachers from the two non-policy universities (65 from HNNU and 91 from NJNU) were discarded because the targeted population in the qualitative study should be policy-funded pre-service teachers. Moreover, the 62 last-year policy-funded pre-service teachers from SWU were excluded because they were no longer pre-service teachers when the online interview commenced[11]. Therefore, the 110 first-year policy-funded pre-service teachers from SWU who left their contact information were the potential interview participants. After excluding three questionnaires with uncompleted sections, the final pool for sampling the online interviewees for this study was 107 first-year policy-funded pre-service teachers (they were in the second year of study when participating in the interview).

Secondly, a guideline was established for recruiting interviewees with different attitudes towards the funding policy. According to the results of the quantitative data analysis (see section 4.11.1 in Chapter 4), the policy-funded pre-service teachers could be divided into three groups in terms of their satisfaction levels towards the funding policy: the high satisfaction group (HSG), the medium satisfaction group (MSG), and the low satisfaction group (LSG). The distribution of the 107 participants with contact information among the three groups (see Table 3) provided a guideline for the research to sample policy-funded pre-service teachers with different attitudes towards the funding policy.

[11] The qualitative study was conducted over half a year after the quantitative survey. So, all the last-year pre-service teachers in the survey had graduated from university to become in-service teachers when the online interview started.

Table 3: Distribution of Policy-Funded Pre-service Teachers among the High, Medium, and Low Satisfaction Groups

Number of Participants	HSG	MSG	LSG	Total
Number of Policy-Funded Pre-service Teachers (PFPTs)	123	114	72	309
Number of PFPTs Suitable for Recruiting for Interviewing (Those who leave contact information on the questionnaire)	41	50	16	107
Number of PFPTs Sampled and Invited for Interviewing	4	4	4	12
Number of PFPTs Agreed and Participated in Interviews	3	2	2	7

Thirdly, seven participants were confirmed to participate in the online audio interviews. The researcher originally planned to online interview 12 policy-funded pre-service teachers from the sample pool due to the limitation of time and financial resources. So, four policy-funded pre-service teachers from each of the three groups were randomly selected by using SPSS 22.0, and information sheets and consent forms were sent out to them online through the contact details they left. Seven invitees – three from the high satisfaction group, two from the medium satisfaction group, and two from the low satisfaction group – returned the signed consent forms online to show their agreement to participate in the online audio interview (see Table 3).

Finally, the online audio interviews with the seven policy-funded pre-service teachers in China were conducted from January to February 2014 through the instant communication software QQ which was frequently used in China. At the beginning of each interview, the researcher restated the purposes of the study, the time duration required, and the ethical considerations to the interviewee. During the interview, main questions on the interview outline (see Appendix 12) were asked. Sub-questions and follow-up questions were raised when needed to either clarify a response or elicit other relative topics. All the online audio interviews were conducted in Mandarin and tape-recorded with the participants' approval. Each interview lasted for around one hour, and once it was completed, the audio recording was transcribed into a word document in Chinese which was then sent to the interviewee to read. After being approved by the interviewees, these Chinese transcripts were analysed, and seven narrative stories were created and presented in English (see Chapter 5). Following the quantitative data analysis, these narrative stories were expected to further demonstrate the "complexity and multiplicities" (Chase, 2011, p. 429) of career-choice motivations and study

engagement of policy-funded pre-service teachers whose attitudes towards the funding policy were different.

3.5 Ethical Consideration

Official permissions to conduct this study were received before data collection. Firstly, the researcher applied for the permission to use the FIT-Choice scale in the present study, and the scale developers kindly granted the permission on 18 September 2012 (see Appendix 4). Then, the researcher complied with the regulations of University of Canterbury to complete applications for ethical approval to conduct this study, and the ethical approval was finally granted by the Educational Research Human Ethics Committee at University of Canterbury on 7 January 2013 (see Appendix 1).

In addition, returning back to China for the four-month data collection was also applied and approved. Funded by the China Scholarship Council and University of Canterbury Joint PhD Scholarship programme, the researcher was allowed to return to China for one month only in an academic year during the PhD study in New Zealand according to the regulations of the programme at that time. This regulation was contradicted with this study's plan for data collection in 2013 which could last for a longer period than one month. Therefore, with the support from the thesis supervisors and the university, the researcher applied to the China Scholarship Council, the Consulate-General of People's Republic of China in Christchurch, University of Canterbury (UC), and College of Education at UC for a four-month data collection in China from March to June 2013 (see Appendix 2), and finally, the application was permitted through a phone call from the Consul for Education in the Consulate-General of People's Republic of China in Christchurch.

It is very important to protect the rights of participants in this study. In the process of collecting quantitative data, the leaders of the three targeted universities, the course lecturers, and all the pre-service teachers received a letter (the information sheet and the consent form) introducing the study and requiring their voluntary participation. Similarly, during qualitative data collection, all the interviewees received the same letter. Participants who agreed to participate were recruited.

The contact information left by the participants on the questionnaires was only used for follow-up studies. The images of the interviewees could not be seen as they were online audio interviews, and the researcher ensured that the interviews with the participants online

were conducted in a respectful and understanding manner. When creating the narrative stories in the qualitative study, pseudonyms were used to protect their identity (see Chapter 5). Finally, all the data gathered in this study were treated confidentially.

CHAPTER 4: QUANTITATIVE DATA ANALYSIS AND RESULTS

Introduction

The purposes of the present research were to explore the impacts of the Government-Funded Teacher Education Policy (GFTEP) on Chinese pre-service teachers' *career-choice motivation* and *study engagement*, and to present suggestions for improving the policy. Guided by these research aims, 12 research questions were raised, which included nine quantitative research questions and three qualitative research questions. This chapter will analyse the quantitative data to answer the nine quantitative questions as follows:

(i) What are the types of *career-choice motivation* of Chinese pre-service teachers, and what importance do they place on each type?

(ii) What are the dimensions of *study engagement* of Chinese pre-service teachers, and what is the strength of each dimension?

(iii) What is the relationship between *career-choice motivation* and *study engagement* of Chinese pre-service teachers?

(iv) Of the policy-funded pre-service teachers (PFPTs), how important is each type of *career-choice motivation*, and how does this change according to different demographic variables?

(v) What is the strength of *study engagement* of the PFPTs, and how does this change according to different demographic variables?

(vi) How do the PFPTs compare with the self-sponsored pre-service teachers in terms of *career-choice motivation* and *study engagement*?

(vii)What is the level of the PFPTs' satisfaction with different terms of the Government-Funded Teacher Education Policy (GFTEP)?

(viii) What are the PFPTs' *perceptions about teaching* and how do they feel about their *decision to become a teacher*?

(ix) Are there any identifiable groups of PFPTs according to their satisfaction levels with different terms of the GFTEP? Given that the groups are identified, how do they differ in demographic characteristics, *perceptions about teaching*, *decision to become a teacher*, *career-choice motivation*, and *study engagement*?

The quantitative study divided Chinese pre-service teachers into two groups: those who were fully funded by Chinese government (the policy-funded pre-service teachers, PFPTs) and those who were self-sponsored (the self-sponsored pre-service teachers, SSPTs). The first

quantitative research questions (i) to (iii) focused on *career-choice motivation* and *study engagement* of Chinese pre-service teachers as a whole. The results of these research questions, especially the types of *career-choice motivation* and dimensions of *study engagement*, served as the basis for analysing the quantitative data for other research questions. The next three quantitative research questions (iv) to (vi) concentrated on *career-choice motivation* and *study engagement* of the PFPTs. Through comparison between the PFPTs and the SSPTs in terms of *career-choice motivation* and *study engagement*, the results to question (vi) represented, to a large degree, the impacts of the Government-Funded Teacher Education Policy. The other three quantitative research questions (vii) to (ix) expanded the variables by adding *perceptions about teaching* and *decision to become a teacher* as influential factors; however, they further narrowed down the focus to PFPTs with different satisfaction levels towards the GFTEP. Research on these questions further analysed the impacts of the policy within the PFPT group and from a different perspective: the PFPTs' attitudes towards the policy. Answers to question (ix) not only reached the research purposes but also served as a transitional base from the quantitative study to the qualitative study of the present research.

The quantitative data in this study were gathered by administering the Chinese version of three instruments to 712 pre-service teachers from three teacher-training universities in P.R. China. These instruments included the Factors Influencing Teaching Choice Scale (the FIT-Choice scale, see Appendix 7) developed by Watt and Richardson (2007), the Student Version of Utrecht Work Engagement Scale (the UWES-S-17 scale, see Appendix 10) created by Schaufeli and Bakker (2004b), and the researcher-developed GFTEP Satisfaction Scale (the GFTEP-S Scale, see Appendix 11). The Chinese version of these survey instruments were combined to form the entire questionnaire which shared the same demographic information (see Appendix 6) in the present study.

These data were loaded into SPSS 22.0 files and processed through multiple quantitative methods, including exploratory factor (principal component) analysis, bivariate and partial correlation analysis, multiple regression analysis, independent-samples t-test, two-way between-group ANOVA, and cluster analysis (see the following sections in this chapter).

This chapter will firstly illustrate the approaches to deal with the missing values in section 4.1, and then demonstrate the demographic information of the participants in section 4.2. Finally,

from section 4.3 to 4.11, this chapter will analyse the quantitative data and answer the nine quantitative research questions one by one.

4.1 Dealing with Missing Values

Overall, the quantitative data in the present study had a low level of missing values. The missing data for participants' background information (see Appendix 13) were all lower than 10%, except for Family Month Income with around 16.4% missing data. In the participants' responses to the questionnaire items, the missing data were found to be even lower – ranging from 0.56% for B1 to 3.23% for F3 (see Appendix 14).

For the nonmetric variables of Gender, Nationality, and Home Region, the very small number of missing data was checked individually and imputed according to some clues, such as that participant's other information, the previous and next participants' information, and the majority's response to the same variable. Based on records of the teacher-training programmes enrolled by each participant, the missing data in the nonmetric variables of *School to Teach* and *Subject to Teach* were inferred and replaced because they were usually consistent with the teacher education programmes.

For the metric variables, all the missing data were treated with the expectation maximization (EM) approach before conducting the data analysis. The EM approach is a model-based method which includes two repetitive stages (E and M stages). The E stage estimates the best possible value to replace the missing data, and the M stage then estimates some parameters, such as means, standard deviations, and correlations, presuming the missing data were replaced. This process keeps going through the two stages and replaces the missing data when the change in the estimated values is inappreciable. The EM approach shows effectiveness especially in the situation when the missing values are non-random. In the present study, the missing data on some metric variables may not miss completely at random. For example, the relatively high rate of missing data in Family Month Income (16.4%) may be ascribed to the participants' strong reluctance to report it. Therefore, the EM approach was selected as the imputation method and conducted to deal with all the missing data in the metric variables.

After the abovementioned two procedures, all the missing data in the present study were remedied and the full quantitative data gathered from 712 Chinese pre-service teachers were ready for analyses.

4.2 Demographic Information of Participants: Comparisons between the Policy-Funded Pre-service Teachers (PFPTs) and the Self-Sponsored Pre-service Teachers (SSPTs)

Participants in the present study are comprised of two groups of pre-service teachers: the policy-funded pre-service teachers (PFPTs) and the self-sponsored pre-service teachers (SSPTs). For both groups, the participants demographic information contains personal information (such as gender, ethnicity, and age), family background (such as home region, family income, and home division), and university profile (such as type of university, year of study, discipline category, National College Entrance Examination (NCEE) above-bar scores, school level to teach, and school subject to teach). The following sections are going to describe and compare the demographic distribution of participants in the two groups.

4.2.1 Personal Information

As showed in Table 4, the percentage of female pre-service teachers (67.8%) was approximately two times greater than that of their male counterparts (32.2%). This trend was similar in both the PFPT group (68.6% vs. 31.4%) and the SSPT group (67.2% vs. 32.8%), and the proportion of female and male pre-service teachers in the PFPT group had no significant difference from that of the SSPT group (χ^2 =.278, df=1, p>.05).

There were many more Han pre-service teachers (84.6%) than minority pre-service teachers (15.4%). This was true in both the PFPT group and the SSPT group. However, there were 14.4% more minority pre-service teachers in the PFPT group than in the SSPT group. According to the results of Chi-Square test (χ^2 =76.965, df=1, p<.001), the proportion of Han and Minority pre-service teachers in the PFPT group (76.4% vs. 23.6%) was significantly different from that of the SSPT group (90.8% vs. 9.2).

As for age span, overall, most of the pre-service teachers (90%) were between the ages of 19 to 24. Half of them were between the ages of 19 to 21, and 40% were between the ages of 22 to 24. Only 10% of them were under 19 or over 24. Additionally, further analyses found that 90.9% of the pre-service teachers aged 21 or younger were in their first year of university study, and 98.2% of the pre-service teachers aged 22 or older were in their last year of university studies. (Results from comparing pre-service teachers' year of study, therefore,

were very much similar to those from comparing their age span. To avoid repetition, age span was not included in many of the following comparing analyses).

Table 4: Personal Information of Policy-Funded Pre-service Teachers (PFPTs, N=309) and Self-Sponsored Pre-service Teachers (SSPTs, N=403)

Variables	Characteristics	N of PFPTs (%)	N of SSPTs (%)	Total N (%)
Gender	Male	97(31.4)	132(32.8)	229(32.2)
	Female	212(68.6)	271(67.2)	483(67.8)
Ethnicity	Han	236(76.4)	366(90.8)	602(84.6)
	Minority	73(23.6)	37(9.2)	110(15.4)
Age (Years)	17-18	27(8.7)	36(8.9)	63(8.8)
	19-21	144(46.6)	212(52.6)	356(50.0)
	22-24	132(42.7)	153(38.0)	285(40.0)
	Over 24	6(1.9)	2(0.5)	8(1.1)

Note: "N" stands for "number of participants" and "%" stands for "percentage of participants". They stand for the same meaning in all the following tables.

4.2.2 Family Background

As displayed in Table 5, the majority of pre-service teachers' homes were located in rural areas (69%) and only 31% of pre-service teachers came from urban areas. This was mirrored in both the PFPT group and the SSPT group. However, the SSPT group contained a larger percentage (74.9%) of pre-service teachers from rural areas than the PFPT group (61.2%), and this difference was statistically significant (χ^2 =31.007, df=1, p<.001).

Overall, almost half (46.1%) of pre-service teachers reported their monthly family income as no more than 2000 RMB, about one third (29.5%) reported it as 2001 to 4000 RMB, and a quarter (24.4%) reported it as over 4000 RMB. This distribution was not mirrored in the two groups. In the PFPT group, almost equal number of pre-service teachers (χ^2 =.058, df=2, p>.05) reported their monthly family income as no more than 2000 RMB (32.7%), 2001 to 4000 RMB (33.7%), and over 4000 RMB (33.7%). In the SSPT group, however, over half (56.3%) of pre-service teachers reported that their monthly family income was below 2000 RMB, around a quarter (26.3%) reported it as between 2000 and 4000 RMB, and only 17.4% reported it as over 4000 RMB. According to the results of Chi-Square test, the number of PFPTs in the three income brackets was significantly different from that of the SSPTs (χ^2 =83.898, df=2, p<.001).

Additionally, according to the report published by IMF about China's GDP in 2013 (International Monetary Fund, 2013), the average monthly income for Chinese people in 2013 (when the research collected these data) was around 3000 RMB. Therefore, the pre-service teachers with monthly family income less than 2000 RMB were labelled as low family income group, those with monthly family income between 2000 RMB and 4000 RMB were labelled as medium family income group, and those with monthly family income more than 4000 RMB were labelled as high family income group.

Table 5: Family Background of Policy-Funded Pre-service Teachers (PFPTs, N=309) and Self-Sponsored Pre-service Teachers (SSPTs, N=403)

Variables	Characteristics	N of PFPTs (%)	N of SSPTs (%)	Total N (%)
Home Region	Rural Areas	189(61.2)	302(74.9)	491(69.0)
	Urban Areas	120(38.8)	101(25.1)	221(31.0)
Family Income (RMB/Month)	2000 or less (Low Income Group)	101(32.7)	227(56.3)	328(46.1)
	2001-4000 (Medium Income Group)	104(33.7)	106(26.3)	210(29.5)
	Over 4000 (High Income Group)	104(33.7)	70(17.4)	174(24.4)

Note: See Table 6 for distribution of participants' home division.

Moreover, as demonstrated in Table 6, the 712 pre-service teachers in this study came from 31 divisions of China[12]. The first three divisions where most of the pre-service teachers' home located were Sichuan Province (36.4%), Hunan Province (15.7%), and Chongqing Municipality (6.2%). All the three divisions are located in southwest and middle parts of China where the economy is less developed than the east and coastal areas of China, and they are also the locations of the three universities in the study.

[12] Divisions of China include provinces, municipalities, autonomous regions, and special administrative regions.

Table 6: Distribution of Home Divisions of the 712 Participants

Home Division	N of Participants	Percentage (%)
Sichuan Province	259	36.4
Hunan Province	112	15.7
Chongqing Municipality	44	6.2
Yunnan Province	39	5.5
Guizhou Province	32	4.5
Xinjiang Uygur Autonomous Region	27	3.8
Henan Province	20	2.8
Anhui Province	18	2.5
Jiangxi Province	17	2.4
Shanxi Province	17	2.4
Guanxi Province	15	2.1
Missing Value	14	2.0
Hebei Province	12	1.7
Shandong Province	10	1.4
Hubei Province	9	1.3
Guangdong Province	7	1.0
Liaoning Province	7	1.0
Tibet Autonomous Region	7	1.0
Gansu Province	6	.8
Hainan Province	6	.8
Qinghai Province	6	.8
Shaanxi Province	6	.8
Jiangsu Province	5	.7
Tianjing Municipality	4	.6
Zhejiang Province	3	.4
Beijing Municipality	2	.3
Fujian Province	2	.3
Helongjiang Province	2	.3
Jilin Province	2	.3
Inner Mongolia Autonomous Region	1	.1
Ningxia Hui Autonomous Region	1	.1
Total	712	100.0

4.2.3 University Profile

As shown in Table 7, there were 43.4%, 25.7% and 30.9% of the pre-service teachers from SWU, HNNU, and NJNU respectively. Those from SWU were all fully funded by the government (PFPTs) and those from the other two universities were all self-sponsored (SSPTs).

There was no big gap between the number of first-year pre-service teachers and the last-year pre-service teachers in this study (54.2% vs. 45.8%). This was similar in both the PFPT group and the SSPT group. The results of Chi-Square test show that there is no significant difference between the number of first-year and last-year pre-service teachers in the PFPT group (χ^2 =.935, df=1, p>.05). Moreover, the proportion of first-year pre-service teachers and last-year pre-service teachers in the PFPT group had no significant different from that of the SSPT group (χ^2 =.812, df=1, p>.05). Additionally, further analyses found that most (82.3%) of first-year pre-service teachers were between the ages of 19 to 21, and the majority (85.8%) of the last-year pre-service teachers were between 21 to 24 years old.

Table 7: University Profiles of Policy-Funded Pre-service Teachers (PFPTs, N=309) and Self-Sponsored Pre-service Teachers (SSPTs, N=403)

Variables	Characteristics	N of PFPTs (%)	N of SSPTs (%)	Total N (%)
University Attended	SWU	309(100)	0(0)	309(43.4)
	HNNU	0(0)	183(100)	183(25.7)
	NJNU	0(0)	220(100)	220(30.9)
Year of Study	First Year	163(52.8)	223(55.3)	386(54.2)
	Last Year	146(47.2)	180(44.7)	326(45.8)
Discipline Category	Liberal Arts	198(64.1)	195(48.4)	393(55.2)
	Science	110(35.6)	202(50.1)	312(43.8)
	Mixed Subjects	1(0.3)	6(1.5)	7(1.0)
NCEE Above-bar Score	Under 25 (Low Group)	128(41.4)	241(59.8)	369(51.8)
	25-50 (Medium Group)	131(42.4)	149(37.0)	280(39.3)
	Over 50 (High Group)	50(16.2)	13(3.2)	63(8.8)
School Level to Teach	Kindergarten	44(14.2)	8(2.0)	52(7.3)
	Primary School	28(9.1)	18(4.5)	46(6.5)
	Junior High School	43(13.9)	133(33.0)	176(24.7)
	Senior High School	191(61.8)	162(40.2)	353(49.6)
	University	1(0.3)	11(2.7)	12(1.7)
	Not Sure	2(0.6)	71(17.6)	73(10.3)
School Subject to Teach	Chinese	41(13.3)	28(6.9)	69(9.7)
	Math	26(8.4)	74(18.4)	100(14.0)
	English	71(23.0)	76(18.9)	147(20.6)
	Politics	50(16.2)	18(4.5)	68(9.6)
	History	6(1.9)	2(0.5)	8(1.1)
	Geography	6(1.9)	43(10.7)	49(6.9)
	Physics	7(2.3)	35(8.7)	42(5.9)
	Chemistry	34(11.0)	14(3.5)	48(6.7)
	Biology	1(0.3)	10(2.5)	11(1.5)
	Art	11(3.6)	16(4.0)	27(3.8)
	Other Subjects	53(17.2)	33(8.2)	86(12.1)
	Not Sure	3(1.0)	54(13.4)	57(8.0)

The overwhelming majority of the pre-service teachers (99%) were majoring in either liberal arts (55.2%) or science (43.8%). Very few (1%) were in mixed subjects. For the purpose of further analyses, the only one PFPT with mixed subjects was placed in the liberal arts category. For the six SSPTs with mixed subjects, half were placed in the liberal arts category and the other half were place in science category. There were 28.5% more liberal arts pre-service teachers than science counterparts in the PFPT group (χ^2 =25.634, df=1, p<.001), while in the SSPT group there were almost equal number of pre-service teachers in the two study areas (χ^2 =.122, df=1, p>.05).

One half (51.8%) of the pre-service teachers reported that their National College Entrance Examination (NCEE) scores surpassed the bar set by the university they attended by 24 points or less (thus labelled as low score group). Approximately 40% of them reported their scores were 25 to 50 points higher than the bar (labelled as medium score group) and about 9% exceeded it by over 50 points (labelled as high score group). Similar trend existed in both the PFPT group and the SSPT group. However, in the PFPT group, there were 13% more pre-service teachers in the high score group than the SSPT group (χ^2 =182.599, df=2, p<.001).

After graduation, nearly three quarters (74.3%) of the pre-service teachers were going to become junior or senior high school teachers. Around 15% of them wanted to teach in other educational institutions. Slightly over 10% of them had not decided yet. This trend was partially echoed in the two groups. In the PFPT group, more than 60% of them wanted to become a senior high school teacher and only about 14% planned to teach in junior high schools. In the SSPT group, however, there were about 20% less pre-service teachers who planned to teach in senior high schools and about 10% more who would like to teach in junior high schools compared with the PFPT group. As for those who had not decided which school level to teach, only 0.6% of them were found in the PFPTs and 17.6% in the SSPTs.

There were more than ten school subjects that the pre-service teachers were going to teach. Overall, the first three most popular subjects reported by 44.3% pre-service teachers were English (20.6%), Math (14%) and Chinese (9.7%). These subjects were in line with the three most important subjects in the National College Entrance Examination (NCEE). Eight percent of the participants had not decided yet. Relatively more PFPTs reported they were to teach politics (16.2%) and Chemistry (11%) and relatively more SSPTs reported they were to teach Geography (10.7%) and Physics (8.7%). There was a big gap between the percentages

of pre-service teachers who did not decide which subject to teach in the PFPT group (1%) and the SSPT group (14.1%).

4.2.4 Summary

This quantitative study sampled 712 Chinese pre-service teachers from three universities in P.R. China. Approximately half of them were first-year undergraduates and the other half were last-year undergraduates, and 43% of them were policy-funded pre-service teachers and the others were self-sponsored. For their study areas, over half of them were majoring in liberal arts and the others were in science. All these Chinese pre-service teachers passed the National College Entrance Examinations (NCEE) before attending teacher-training universities, and most of them were trained to teach a variety of subjects in middle schools and secondary schools.

Among these participants, the number of female pre-service teachers was approximately two times larger than that of their male counterparts, and the majority of them were Han people. These Chinese pre-service teachers were young – generally aged from 19 to 24. The geographical distribution of their home regions covered almost all the divisions in mainland China; however, over half of them came from the less developed southwest and central parts of mainland China. Moreover, most of these Chinese pre-service teachers came from rural-area families with a relatively low family income.

Several differences were found in demographic information between the policy-funded pre-service teachers (PFPTs) and the self-sponsored pre-service teachers (SSPTs) in this study.

Firstly, the population of the policy-funded ethnic minority pre-service teachers was larger than that of the self-sponsored minority pre-service teachers. Secondly, more self-sponsored participants came from rural areas than those funded by the government; and these funded by the government seemed to have a higher family income than those self-sponsored. Thirdly, more self-sponsored pre-service teachers majoring in science than their policy-funded counterparts; and the policy-funded participants had a generally higher score in the National College Entrance Examination (NCEE) than their self-sponsored counterparts. Lastly, the policy-funded pre-service teachers were more determined to become a teacher than the self-sponsored pre-service teachers.

Additionally, considering these demographic differences between the two groups of participants (the PFPTs and the SSPTs), some analyses in the following sections will statistically control participants' demographic variables, such as in the regression analyses (see Section 4.5) and in the MANOVA analyses (see Section 4.8).

4.3 Career-Choice Motivation of Chinese Pre-service Teachers: Types and Importance

The first quantitative research question contained two sub-questions: what are the types of *career-choice motivation* of Chinese pre-service teachers, and what importance do they place on each type?" To analyse quantitative data for this research question, exploratory factor analysis (EFA) with principal component analysis was chosen as the major statistical technique, and both orthogonal and oblimin rotations were tried to obtain the most appropriate factors. The reasons for choosing the EFA technique to analyse quantitative data in the present study are discussed in section 3.3.1.1 of Chapter 3.

4.3.1 Examining Assumptions in Factor Analysis

The instrument used for gathering quantitative data was the Chinese version of the Career-Choice Motivation scale (CCM scale), which was Part B of the Factors Influencing Teaching Choice Scale (see part B in Appendix 7). The CCM scale was comprised of 38 variables (items). Data were gathered from 712 pre-service teachers including both the PFPTs and the SSPTs. Therefore, there was an 18:1 ratio of cases to variables, which fell in the acceptable range for factor analysis (Hair et al., 2010). Moreover, the sample size of 712 provided an adequate basis for calculating correlations between the variables.

To further assess the appropriateness of factor analysis for the CCM scale, the researcher conducted analyses on the correlations, the measure of sampling adequacy (MSA) and the anti-image correlations among the full set of 38 variables. The results were showed in Appendix 15 and Appendix 16. Firstly, examining the correlation matrix (see Appendix 15) revealed that 599 of the 676 correlations (88.6%) were significant at the .01 level. The number of significant correlations at the .01 level for each item ranged from 12 (B10, B35) to 37 (B3, B8, B19, B21 and B34). Secondly, the Bartlett's Test of Sphericity indicated the overall correlations were significant at the .001 level. Moreover, the overall value of the measure of sampling adequacy (MSA) was .936 and the MSA value for each variable (see Appendix 16) ranged from .702 (B27) to .970 (B20), all of which fell within the acceptable

limits (over .50) and even exceeded the "middling" value (.70 or above) according to the guidelines suggested by researchers (Kaiser, 1970, 1974; Kaiser & Rice, 1974). This means the set of variables meet the fundamental requirements for factor analysis. Finally, visual inspection of the values of anti-image correlation (the negative values of the partial correlation, see Appendix 16) found that only one value greater than .50 (B15-B25), which indicated again the strength of interrelationships among the set of variables. To summarise, all these measures demonstrated that the set of variables were appropriate for factor analysis processed in the next stage.

4.3.2 Principal Component Analysis and Results

The principal component analysis was conducted in order to exam if the variables on the CCM scale could be reduced and grouped into identifiable clusters of variables, which in turn were the major types of career-choice motivation. The variables with no significant factor loadings (under .40), cross-loadings, and/or low communalities (under .45) were likely to be eliminated to reduce the number of the variables. The principal component analysis applying different rotating methods (e.g. orthogonal and oblique rotations) was tried. After each component analysis, one variable was deleted and then the component analysis was restarted with the reduced set of variables until a relatively clean set of factor loading was achieved. The following is one example of these processes.

After the first time of principal component analysis was conducted on the full set of 38 variables with orthogonal (varimax) rotation, the rotated factor matrix and communality was summarised in Table 8. Visual examination of the table identified that the highest factor loading for variable B31 was under .40, and it had cross-loadings on factor 2 (.365) and factor 4 (.387). Moreover, B31 had the smallest communality values among the variables (.420). Further analysing the meaning of B31 on the questionnaire ("I have had positive learning experiences", see B31 in Appendix 7) found that it may be too general to be regarded as a reason for the Chinese pre-service teachers to choose teaching as a career. For these reasons, B31 was deleted before conducting the second principal component analysis with the reduced set of variables (without B31). The rotated factor matrix of the second component analysis showed that the total amount of variance extracted was higher than the previous time (61.5% vs. 60.8%). This further verified the appropriateness of deleting B31.

Table 8: Varimax-Rotated Component Analysis Factor Matrix of the Full Set Variables on CCM Scale

	Factor and Factor Loading							
Variable	1	2	3	4	5	6	7	Communality
B37	.786	.290	.136	.053	-.018	.068	-.002	.728
B38	.781	.194	.143	.199	.084	-.089	.028	.723
B36	.732	.266	.115	.161	.126	-.032	.004	.663
B28	.692	.280	.105	.131	.031	.142	.125	.622
B26	.636	.176	.181	.129	-.035	.346	.075	.612
B9	.603	.280	.029	.111	-.107	.245	.295	.613
B18	.577	.161	.249	.227	-.054	.301	.138	.585
B6	.511	.230	.112	.208	-.070	.289	.444	.655
B12	.347	.746	.190	-.045	.065	.159	.063	.748
B11	.234	.730	.131	.223	-.221	.112	.134	.734
B1	.231	.685	.065	.165	-.229	.089	.316	.715
B22	.371	.671	.214	.027	.111	.161	-.057	.676
B29	.429	.665	.218	.017	.113	.067	-.065	.695
B7	.172	.639	.016	.342	-.205	.050	.173	.630
B33	.302	.477	.270	.410	-.131	.028	-.014	.577
B17	.348	.423	.150	.421	-.020	-.002	.159	.526
B30	.077	.241	.719	.150	.013	.056	.008	.607
B23	.129	.048	.713	.189	-.100	.046	.082	.582
B24	.264	.134	.689	.008	.061	.105	.193	.614
B13	.029	.264	.668	-.020	-.040	.245	.149	.601
B14	.189	.205	.635	-.013	.113	.175	.281	.604
B16	.094	-.086	.560	.324	.141	-.075	.222	.509
B19	.315	.007	.453	.430	.136	.055	.015	.512
B20	.418	.215	.423	.016	-.108	.283	.061	.496
B32	.101	.181	.137	.741	.114	.165	-.110	.663
B3	.062	.120	.003	.661	.143	.250	.219	.586
B8	.236	.088	.090	.530	.209	-.149	.146	.439
B34	.280	.160	.379	.474	.171	-.213	-.111	.559
B31	**.173**	**.365**	**.253**	**.387**	**-.073**	**.166**	**.096**	**.420**
B10	.015	-.030	-.010	.031	.761	-.041	.034	.584
B27	-.021	-.125	.097	.100	.743	.160	.016	.613
B35	.049	-.057	.005	.324	.629	-.145	-.074	.533
B15	.368	.281	.156	.028	-.013	.639	.057	.650
B25	.424	.264	.212	.085	-.079	.586	-.047	.653
B21	.026	.024	.371	.368	.157	.469	.011	.519
B2	.127	.194	.336	-.037	.016	-.049	.672	.622
B4	.010	.003	.434	.144	.023	-.011	.630	.607
B5	.360	.437	.143	.185	-.057	.219	.467	.645
Sum of Squares (eigenvalue)	5.450	4.580	4.237	3.057	1.986	1.917	1.891	Total 23.117
Percentage of Variance	14.341	12.053	11.150	8.044	5.226	5.045	4.977	60.835

This process of principal component analysis with orthogonal rotation (the first nine times) and oblique rotation (the last time) was repeated for ten times. After each time of the first nine conducing, one variable was deleted before the next conducting. The nine eliminated variables in sequence were B31, B20, B17, B5, B34, B8, B33, B19 and B2.

The correlation matrix and the anti-image correlation pattern of the 29 revised variables, similar to those of the full set of variables (see Appendix 15 and Appendix 16), both suggested the feasibility of conducting factor analysis on the reduced set of variables. Moreover, as with the full set variables, the reduced set of 29 variables both individually and collectively exceeded the threshold of sampling adequacy with an overall MSA value of .917. In addition, the Bartlett's Test of Sphericity for the reduced set of variables suggested that nonzero correlations existed at the significance level of .001. Therefore, the final time of principal component factor analysis with oblique rotation was conducted on the reduced 29 variables.

Table 9 shows the explanatory power of the 29 variables expressed by eigenvalues. There were six factors with eigenvalues greater than one. This indicated the number of factors to extract was six if following the latent root criterion of eigenvalue greater than one.

Table 9: Extraction of Component Factors for the Reduced 29 Variables in CCM Scale

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings [a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	9.804	33.807	33.807	9.804	33.807	33.807	7.426
2	2.727	9.405	43.212	2.727	9.405	43.212	5.249
3	2.049	7.065	50.277	2.049	7.065	50.277	2.070
4	1.434	4.944	55.221	1.434	4.944	55.221	2.937
5	1.161	4.005	59.226	1.161	4.005	59.226	6.088
6	1.079	3.720	62.946	1.079	3.720	62.946	3.425
7	.877	3.023	65.969				
8	.856	2.951	68.920				
9	.730	2.518	71.438				
10	.700	2.413	73.851				
11	.672	2.318	76.169				
12	.627	2.161	78.330				
13	.602	2.076	80.407				
14	.560	1.932	82.339				
15	.514	1.772	84.111				
16	.483	1.666	85.777				
17	.459	1.583	87.360				
18	.420	1.447	88.807				
19	.405	1.398	90.205				
20	.374	1.288	91.493				
21	.356	1.228	92.721				
22	.337	1.161	93.882				
23	.323	1.115	94.997				
24	.303	1.046	96.043				
25	.279	.962	97.005				
26	.246	.849	97.854				
27	.235	.811	98.665				
28	.220	.759	99.424				
29	.167	.576	100.000				

Note: Extraction Method: Principal Component Analysis. [a] When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Visual inspection on the scree plot of Figure 7 found that there was an "elbow" of eigenvalue between factor 6 and factor 7. Both the latent root criterion (eigenvalue greater than one) and the "elbow" of the scree plot, therefore, suggested that six factors should be retained, which overall explained 62.9% of variance (see Table 9).

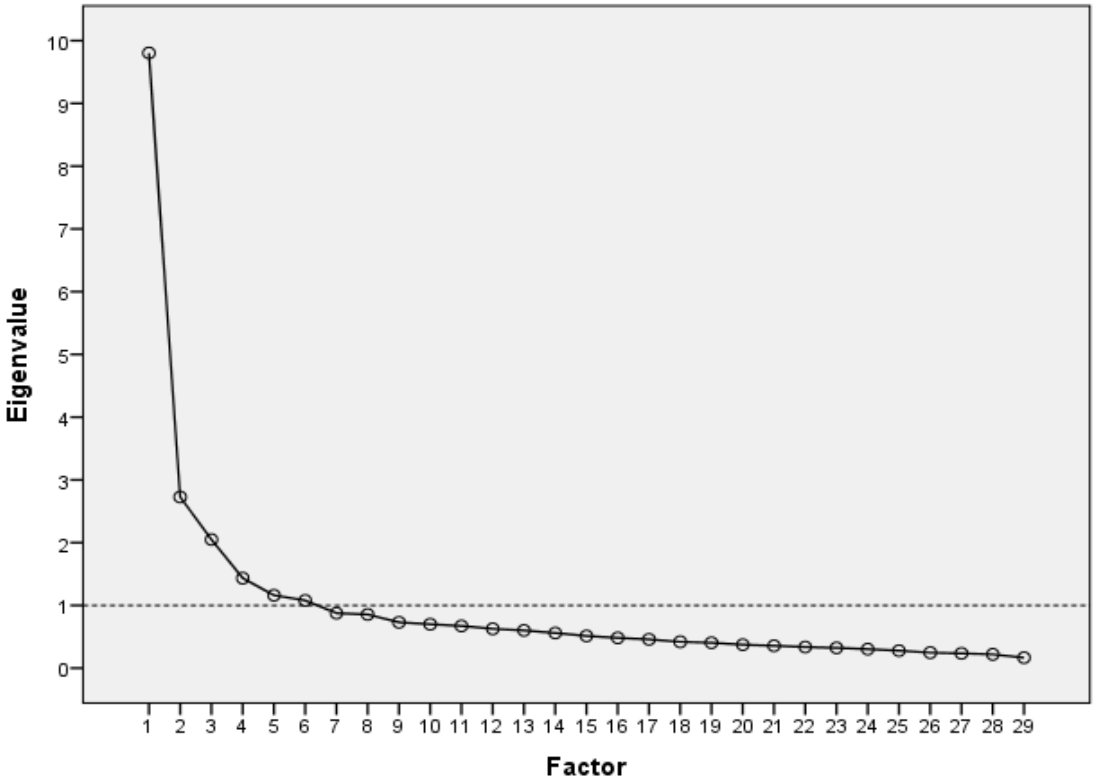

Figure 7: Scree Test for Component Analysis on the Reduced 29 Variables in CCM Scale

The component factor matrix and communalities of the final principal component analysis with oblique rotation on the revised set of variables are showed in Table 10. As showed in the factor pattern matrix, all the variables had factor loadings greater than .40 and most of them exceeded .50. This suggested that the underlying structure among 29 variables had both statistical and practical significance of factor loadings considering the sample size (712) and the number of variables (Hair et al., 2010, pp. 116-118). The rightmost column shows that all the variables had a communality value greater than .50 except for B16 whose communality values (.498) was very close to .50. This demonstrated that the variables were well accounted for by the factor solution. The factor-loading pattern had no cross-loading at the cut-off point of factor loading greater than .40. Overall, the factor-loading matrix was clean and significant, which made the interpretation straightforward and theoretically meaningful.

Table 10: Oblique-Rotated Component Analysis Pattern Matrix of the Reduced 29 Variables in CCM Scale

	Factor and Factor Loading [a]						
Variable	1	2	3	4	5	6	Communality
B38	.851						.715
B37	.807						.725
B36	.759						.665
B28	.719						.639
B9	.625						.585
B26	.620						.622
B18	.550						.573
B6	.543						.561
B23		.733					.563
B30		.705					.583
B13		.691					.616
B4		.685					.535
B24		.683					.604
B14		.648					.596
B16		.633					.498
B10			.729				.524
B27			.717				.576
B35			.625				.596
B3				.792			.672
B32				.721			.638
B21				.433			.503
B12					.744		.754
B11					.707		.756
B22					.681		.682
B29					.656		.692
B7					.639		.656
B1					.621		.686
B15						.724	.732
B25						.668	.709

Note: [a] Factor loadings below .40 have not been printed and variables have been sorted by loadings on each factor.

The meanings of variables with significant loadings contained within each factor were demonstrated in Table 11. After analysing meanings of variables in every factor, the researcher assigned a name to each factor, as showed in Table 11, to represent the underlying nature of the factor. The six factors extracted from the 29 variables about teaching career choice motivation on CCM scale, as explained before, turned out to be the six major types of Chinese pre-service teachers' career-choice motivation. (Details about the names and definitions of the six factors/types of career-choice motivation can be seen in section 2.1.4 of Chapter 2; and discussion of them can be seen in section 6.3.1 of Chapter 6).

The reliability assessment showed that the Cronbach's Alpha of the six summated scales[13] ranged from .638 to .902 and the whole summated scale had a Cronbach's Alpha value of .913 (see Table 11). These measures demonstrated the acceptable internal consistency reliability of the summated scales in exploratory research (Robinson, Shaver, & Wrightsman, 1991). All the 29 variables derived from the FIT-Choice scale, which was validated by the developers (Watt & Richardson, 2007) and reviewed and applied by many experts (Kilinc et al., 2012; Lin et al., 2012; Richardson & Watt, 2006; Watt & Richardson, 2008; Watt et al., 2012). It was ensured, therefore, that the summated scale had acceptable level of content validity. Moreover, as demonstrated on the factor-loading matrix (see Table 10), the clean distribution of the six significant factors suggested that the whole summated scale met the necessary level of construct validity.

[13] Summated scales: Method of combining several variables that measure the same concept into a single variable in an attempt to increase the reliability of the measurement. In this study, the separate variables are combined and then their average score (mean value) is used in the analysis.

Table 11: Types of Career-Choice Motivation and Their Importance Order for Chinese Pre-service Teachers (N=712)

No.		Variables & Meanings	Factor Name (Types)	Summated Scale (Mean)	SD	α [a]	Rank
Factor 1	B38	Teaching will allow me to work against social disadvantage.	Social Value (Altruistic Motivation)	4.825	1.044	.902	3
	B37	Teaching will allow me to have an impact on children/adolescents.					
	B36	Teaching will allow me to benefit the socially disadvantaged.					
	B28	Teaching will allow me to raise the ambitions of underprivileged youth.					
	B9	Teaching will allow me to shape child/adolescent values.					
	B26	Teaching enables me to 'give back' to society.					
	B18	Teachers make a worthwhile social contribution.					
	B6	Teaching allows me to provide a service to society.					
Factor 2	B23	Teaching will provide a reliable income.	Job Advantages (Extrinsic Motivation)	4.907	.959	.839	2
	B30	Teaching will be a secure job.					
	B13	Teaching will offer a steady career path.					
	B4	As a teacher I will have lengthy holidays.					
	B24	School holidays will fit in with family commitments.					
	B14	Teaching hours will fit with the responsibilities of having a family.					
	B16	As a teacher I will have a short working day.					
Factor 3	B10	I was unsure of what career I wanted.	Fallback Career	3.675	1.295	.638	6
	B27	I was not accepted into my first-choice career.					
	B35	I chose teaching as a last-resort career.					
Factor 4	B3	My friends think I should become a teacher.	Others' Suggestion	4.179	1.162	.671	5
	B32	Students I've studied with think I should become a teacher.					
	B21	My families think I should become a teacher.					
Factor 5	B12	I want a job that involves working with children/adolescents.	Personal Interest (Intrinsic Motivation)	4.655	1.223	.887	4
	B11	I like teaching.					
	B22	I want to work in a child/adolescent-centred environment.					
	B29	I like working with children/adolescents.					
	B7	I've always wanted to be a teacher.					
	B1	I am interested in teaching.					
Factor 6	B15	I have had inspirational teachers.	Teacher Influence	5.213	1.283	.815	1
	B25	I have had good teachers as role models.					

Note: [a] α stands for Cronbach's Alpha; The value of α for the overall 29 variables was .913.

Scores/mean values of the summated scale (see Table 11) of the six types of career-choice motivation represented the importance that the Chinese pre-service teachers placed on them. Results of Paired-Samples T-Test showed that the summated scores of the six motivation types were significantly different from each other (see Table 12). These results mean that Chinese pre-service teachers rated the importance of the six types of career-choice motivation significantly different: their importance order in descending was *Teacher Influence, Job Advantages (Extrinsic Motivation), Social Value (Altruistic Motivation), Personal Interest (Intrinsic Motivation), Others' Suggestion*, and *Fallback Career* (see Table 11).

Table 12: Results of Paired-Samples T-Test on Summated Scores of the Six Types of Career-Choice Motivation

		Mean	SD	t	df	Sig. (2-tailed)
Pair 1	Teacher Influence – Job Advantages (Extrinsic Motivation)	.306	1.279	6.384**	711	<.001
Pair 2	Job Advantages (Extrinsic Motivation) – Social Value (Altruistic Motivation)	.082	1.048	2.078*	711	.038
Pair 3	Social Value (Altruistic Motivation) – Personal Interest (Intrinsic Motivation)	.170	.908	5.004**	711	<.001
Pair 4	Personal Interest (Intrinsic Motivation) – Others Suggestion	.476	1.350	9.404**	711	<.001
Pair 5	Others Suggestion – Fallback Career	.504	1.510	8.914**	711	<.001

4.3.3 Summary

Based on the results of the quantitative data analysis, the answer to the first quantitative research question is that there are six major types of motivation for Chinese pre-service teachers to choose teaching as a future career, and Chinese pre-service teachers place significantly different importance level on each of them. The six types of career-choice motivation in the decreasing sequence of importance are *Teacher Influence, Job Advantages (Extrinsic Motivation), Social Value (Altruistic Motivation), Personal Interest (Intrinsic Motivation), Others' Suggestion*, and *Fallback Career*.

4.4 Study Engagement of Chinese Pre-service Teachers: Dimensions and Strength

The second quantitative question was "what are the dimensions of study engagement of Chinese pre-service teachers, and what is the strength of each dimension?" To answer this question, data gathered by the Chinese version of the Student Version of Utrecht Work Engagement Scale (the UWES-S-17 scale, see Appendix 10) from 712 Chinese pre-service teachers were analysed primarily by conducting the principal component analysis.

4.4.1 Examining Assumptions in Factor Analysis

First of all, the correlation matrix of the 17 variables on the scale (see Appendix 17) shows that all the correlations were significant at the .01 level. The Bartlett's Test of Sphericity shows that the overall correlations were significant at the .001 level. The value of Measure of Sample Adequacy (MSA) for each variable was greater than .90 (see Appendix 18) and the overall MSA value was .957 (see Appendix 17). All the measures ensured the appropriateness of conducing factor analysis on the full set of variables of the UWES-S-17 scale.

4.4.2 Principal Component Analysis and Results

The principal component analysis with orthogonal (varimax) or oblique rotation method was conducted five times. Table 13 shows the rotated matrix of the first conducting with the full set of variables. Examining the matrix found that the highest factor loading for variable E13 was lower than .50 and it had the lowest communality value of .321. Therefore, E13 was deleted before conducting the next component analysis. Similar rules were followed for eliminating the variables without significant factor loading. The four variables, which were deleted in the first four times of conducting principal component analysis with different rotation methods, were E13, E7, E10 and E6 respectively.

Table 13: Varimax-Rotated Component Analysis Factor Matrix for the Full Set of Variables on the UWES-S-17 Scale

Variable	Factor and Factor Loading		Communality
	1	2	
E12	.769	.171	.620
E16	.734	.255	.604
E15	.727	.264	.599
E14	.721	.304	.613
E11	.685	.390	.621
E8	.673	.311	.549
E6	.609	.486	.607
E17	.605	.339	.481
E10	.553	.505	.561
E1	.179	.814	.695
E2	.269	.793	.701
E3	.246	.781	.670
E4	.395	.750	.718
E5	.424	.711	.685
E9	.390	.574	.481
E7	.523	.543	.569
E13	**.361**	**.436**	**.321**

The appropriateness of conducting factor analysis on the revised UWES-S-17 scale with 13 variables was tested. The correlation matrix shows that all the correlations of the 13 reduced variables were significant at the .01 level. The Bartlett's Test of Sphericity χ^2 (78) = 5209.548, p< .01 suggested that the correlations between the variables were sufficiently large for principal component analysis. The MAS measure verified the adequacy for factor analysis with the overall MAS value of .946 and individual variable's MAS value ranging from .933 to .962, all of which were greater than the acceptable limit of .50 (Kaiser, 1970, 1974; Kaiser & Rice, 1974). The anti-image correlation shows that no correlation value larger than 0.5. All of these measures verified the principal component analysis on the 13 revised variables.

The principal component analysis with Oblique rotation was conducted on the reduced set of 13 variables of the UWES-S-17 scale. There were two factors with eigenvalue larger than 1.0 (see Table 14). This was slightly different from what was showed in the scree plot (see

Figure 8) which suggested three factors may be appropriate when considering the changes in the eigenvalues. The three-factor solution was tried, but the results (see Appendix 19) show that it did not add to the interpretation: one of the three factors had only two items (E9 and E17) with incompatible meanings. Moreover, the third factor should be excluded in view of its low value (.678) in Table 14 relative to the latent root criteria (1.0). Therefore, the two-factor solution was selected which explained 62.8% of the total variance.

Table 14: Extraction of Component Factors for the Reduced 13 Variables in UWES-S scale

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings [a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.927	53.284	53.284	6.927	53.284	53.284	6.028
2	1.238	9.521	62.805	1.238	9.521	62.805	5.795
3	.678	5.219	68.024				
4	.621	4.774	72.799				
5	.598	4.599	77.398				
6	.487	3.746	81.144				
7	.437	3.362	84.506				
8	.416	3.202	87.708				
9	.356	2.741	90.449				
10	.344	2.649	93.099				
11	.322	2.476	95.575				
12	.304	2.340	97.915				
13	.271	2.085	100.000				

Note: Extraction Method: Principal Component Analysis. [a] When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

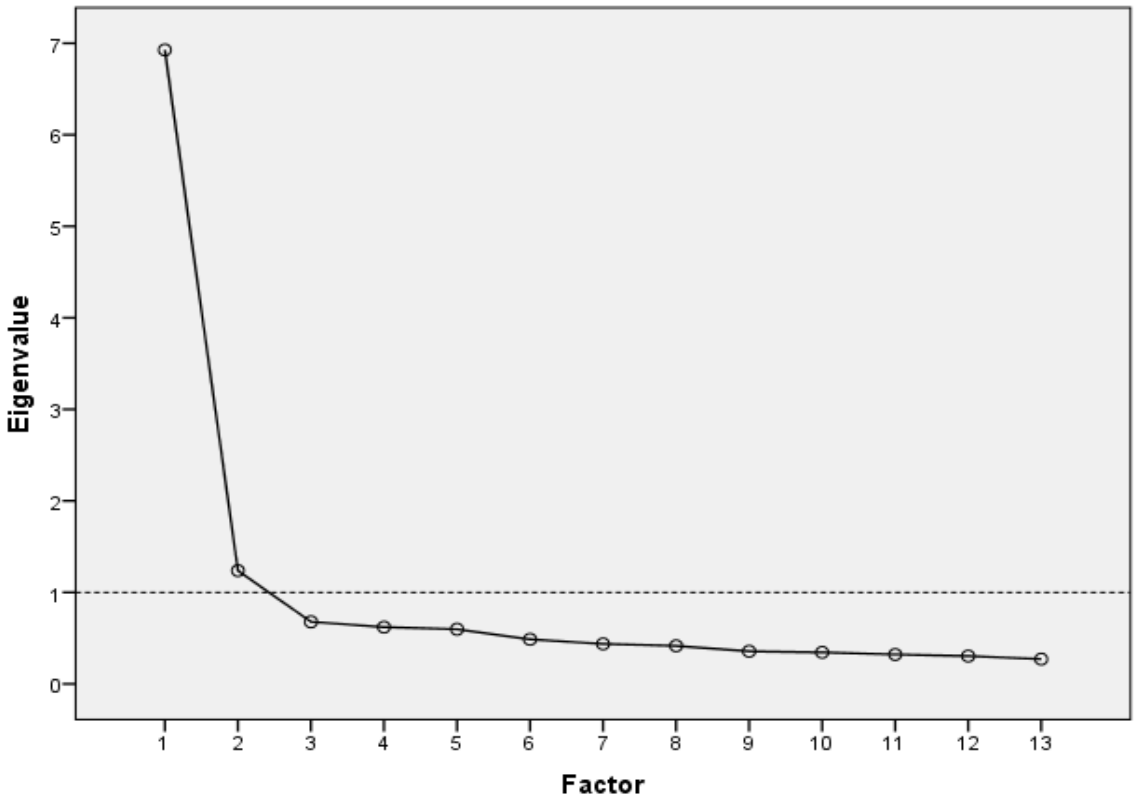

Figure 8: Scree Test for Component Analysis on the Reduced 13 Variables in UWES-S Scale

The principal component analysis with oblique rotation conducting on the revised 13 variables of the UWES-S-17 scale resulted in the following factor-loading matrix and communalities (see Table 15). Visual examining the rotated matrix noted that each of the variables had a significant loading with the lowest one greater than .50 (factor loading was reversed if it was negative). There was no cross-loading if the significant loading was defined as a loading above .40. All the variables had a communality value larger than .50 except for E9 (.458) and E17 (.485). Overall, the rotated factor solution with two factors demonstrated a clean, simplified structure of the 13 reduced variables.

Table 15: Oblique-Rotated Component Analysis Pattern Matrix: Reduced Set of 13 Variables

Variable	Factor and Factor Loading [a]		Communality
	1	2	
E12	.880		.639
E16	.805		.628
E15	.791		.620
E14	.766		.622
E8	.682		.553
E11	.666		.609
E17	.609		.485
E1		-.921	.717
E2		-.856	.723
E3		-.846	.683
E4		-.747	.735
E5		-.686	.692
E9		-.504	.458

Note: [a] Factor loadings below .40 have not been printed and variables have been sorted by loadings on each factor.

The summated scale for each of the two factors was created in Table 16. The abovementioned clean and unidimensional factor-loading pattern suggested the acceptable construct validity of the summated scale. Moreover, as all the 13 variables were originally from the widely applied UWES-S-17 scale in other groups of participants, the face validity (content validity) was able to be ensured. Reliability tests on the summated scale indicated high Cronbach's Alpha value of .884 for factor 1, .894 for factor 2, and .926 for the whole summated scale. Therefore, the summated scale of the revised set of 13 variables about *Study Engagement* was guaranteed to have acceptable validity and reliability.

Table 16: Dimensions of Study Engagement of Chinese Pre-service Teachers and Their Strength Order (N=712)

No.	Variables & Meanings		Factor Name (Dimensions)	Summated Scale (Mean)	SD	Cronbach's Alpha [a]	Ranking
Factor 1	E12	I can continue studying for very long periods at a time.	Persistence	4.236	.994	.884	2
	E16	It is difficult to detach myself from my studies.					
	E15	I am very resilient, mentally, as far as my studies are concerned.					
	E14	I get carried away when I am studying.					
	E8	I am immersed in my studies.					
	E11	When I get up in the morning, I feel like going to class.					
	E17	As far as my studies are concerned I always persevere, even when things do not go well.					
Factor 2	E1	When I'm doing my work as a student, I feel bursting with energy.	Enthusiasm	4.694	.971	.894	1
	E2	I find my studies full of meaning and purpose.					
	E3	Time flies when I am studying.					
	E4	I feel strong and vigorous when I'm studying or going to class.					
	E5	I am enthusiastic about my studies.					
	E9	I feel happy when I am studying intensely.					

Note: [a] The value of Cronbach's Alpha for the overall 13 variables was .926. The summated scale for the 13 variables (the total engagement) was M=4.465, SD=.909.

Through examining the core meanings of the variables within each factor, the researcher assigned two names to represent the two factors respectively as showed in Table 16. Variables in factor 1 were generally concerned about continuousness, resilience, and immersion; therefore the factor was named as *Persistence*. Factor 2, however, contained variables with the meaning mainly about emotional feeling, passion, and love; thus the factor was named as *Enthusiasm*. The two factors represented the two dimensions for measuring the strength of *Study Engagement*. The mean score of the variables within each factor (summated scale) reflected the strength of that dimension. Therefore, the overall strength of *Study Engagement* was the average value of the two dimensions. In a one-to-seven Likert scale, the Chinese pre-service teachers rated *Persistence* as 4.236 and *Enthusiasm* as 4.694; thus their overall strength of *Study Engagement* was 4.465 (SD=.909). A further Paired-Samples T-Test shows that Chinese pre-service teachers rated *Persistence* significantly lower than *Enthusiasm* ($t = -16.355$, $df = 711$, $p < .001$).

4.4.3 Summary

Chinese pre-service teachers' study engagement in teacher-training programmes was able to be divided into two dimensions: *Persistence* and *Enthusiasm.* Among the two dimensions, they rated their enthusiasm significantly higher than their persistence, and their overall study engagement (total engagement) in teacher-training programmes was slightly above the middle point on the seven-point Likert scale.

4.5 Relationship between Career-Choice Motivation and Study Engagement of Chinese Pre-service Teachers

Based on the results for the previous two questions, the third quantitative research question was to explore the relationship between career-choice motivation and study engagement of Chinese pre-service teachers. Two hypotheses were raised for this research question. It was assumed that for Chinese pre-service teachers, the more they emphasise altruistic and intrinsic motivations to teach, the higher level of study engagement they would experience in teacher training. It was also assumed that the more the Chinese pre-service teachers emphasise extrinsic career-choice motivation, the lower level of study engagement they would experience in teacher training. To answer this research question and test these hypotheses, data from 712 Chinese pre-service teachers were analysed by quantitative methods of bivariate (Pearson's) correlation, partial correlation, and multiple regression

analysis. These data were collected by the reduced Chinese version of the Career-Choice Motivation scale (the CCM scale, see Part B in Appendix 7) and the reduced Chinese version of the Student Version of Utrecht Work Engagement Scale (the UWES-S-17 scale, see Appendix 10).

4.5.1 Bivariate Correlation and Partial Correlation

The results of Pearson's correlations between the six types of career-choice motivation and the two dimensions of study engagement (also called as "total engagement" in the present study) are demonstrated in Table 17. Except for the correlations between *Fallback Career*, *Enthusiasm*, and *Total Engagement*, all the Pearson's correlation coefficients ranged from .151 to .469 and were statistically significant at the .01 level.

Table 17: Pearson's Correlations between Career-Choice Motivation and Study Engagement for Chinese Pre-service teachers (N= 712)

	Social Value (AM)	Job Advantages (EM)	Fallback Career	Others' Suggestion	Personal Interest (IM)	Teacher Influence
Persistence	.380**	.151**	.151**	.300**	.322**	.234**
Enthusiasm	.469**	.292**	-.009	.245**	.416**	.349**
Total Engagement	.458**	.238**	.078*	.295**	.399**	.315**

Note: **. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed). "AM" refers to Altruistic Motivation, "EM" refers to Extrinsic Motivation, and "IM" refers to Intrinsic Motivation. They stand for the same in all the following tables.

As the six types of motivation were correlated with each other (see Appendix 20) and most of them were correlated with study engagement (see Table 17), partial correlation was calculated between one type of motivation and study engagement with five other types of motivation held constant. The results of the partial correlations (see Table 18) were different from those of the Pearson's correlation (see Table 17). The partial correlation coefficients generally decreased, which in turn indicated that the original correlations were inflated by the effects of other types of motivation on the tested variables.

Table 18: Partial Correlations between Career-Choice Motivation and Study Engagement for Chinese Pre-service Teachers (N= 712, df=705)

Control Variables		Persistence	Enthusiasm	Total Engagement
Job Advantages & Fallback Career & Others' Suggestion & Personal Interest & Teacher Influence	Social Value (AM)	.186**	.212**	.217**
Fallback Career & Others' Suggestion & Personal Interest & Teacher Influence & Social Value	Job Advantages (EM)	-.099**	.061	-.023
Others' Suggestion & Personal Interest & Teacher Influence & Social Value & Job Advantages	Fallback Career	.136**	-.013	.070
Personal Interest & Teacher Influence & Social Value & Job Advantages & Fallback Career	Others' Suggestion	.143**	.032	.098**
Teacher Influence & Social Value & Job Advantages & Fallback Career & Others' Suggestion	Personal Interest (IM)	.114**	.110**	.123**
Social Value & Job Advantages & Fallback Career & Others' Suggestion & Personal Interest	Teacher Influence	-.007	.055	.025

A visual examination of the results of partial correlations in Table 18 found that different types of career-choice motivation had different relationships with study engagement. Both *Social Value* (*Altruistic Motivation*) and *Personal Interest* (*Intrinsic Motivation*) were positively correlated with the two dimensions of study engagement and *Total Engagement* at the statistically significant level of .01. *Job Advantages* (*Extrinsic Motivation*) was negatively correlated with *Persistence* of study engagement at the statistically significant level of .01; however, it had no statistically significant correlation with either *Enthusiasm* or *Total Engagement*. For the motivation type of *Fallback Career*, its partial correlation with *Persistence* was statistically significant at the .01 level, but it had no statistically significant correlation with either *Enthusiasm* or *Total Engagement*. The motivation type of *Others' Suggestion* was correlated with both *Persistence* and *Total Engagement* at the significant

level of .01, but it had no statistically significant correlation with *Enthusiasm*. The only motivation type that had no statistically significant correlation with either dimension of study engagement or *Total Engagement* was *Teacher Influence*. Additionally, except for the *Social Value* row, all the r values suggested small relationships at around .10 level.

4.5.2 Multiple Regression Analysis

4.5.2.1 Objectives

The relationships between career-choice motivation and study engagement were initially showed by the correlation tests. To further explore if there was any causal correlations between them, the multiple regression analysis was conducted. Theoretically, different types of motivation (altruistic motivation, intrinsic motivation, extrinsic motivation, etc.) for a person to do one thing would cause different strength of engagement. Based on results of correlation tests, the objectives of the multiple regression analysis of this study were: to explore if the Chinese pre-service teachers' career-choice motivation can predict their study engagement in teacher training; and to further explain the relationships between career-choice motivation and study engagement.

The multiple regression analysis was conducted for three times with the six types of career-choice motivation, namely *Teacher Influence, Job Advantages (Extrinsic Motivation), Social Value (Altruistic Motivation), Personal Interest (Intrinsic Motivation), Others' Suggestion,* and *Fallback Career* as the six independent variables. *Total Engagement*, which represented study engagement, was selected as the dependent variable for the first regression analysis. One dimension of study engagement, *Persistence*, was selected as the dependent variable for the second regression analysis. The other dimension, *Enthusiasm*, was selected as the dependent variable for the third regression analysis.

In this study, the relatively large sample size enabled the regression analysis to detect even weak relationships, and the ratio of observations to independent variables ensured generalizability of the results. The interplay was concluded by Hair et al. (2010, p. 174) among sample size, the significance level (α) and the number of independent variables in detecting a significant R^2 with a power of .80. According to Hair et al.'s conclusion, when the significant level was set at .01, the regression analysis with the sample of 712 and six potential independent variables was able to identify relationship explaining as small as

approximately 2.5 percent of the variance for 80 percent of the time when the relationship occurred. Moreover, in the present study, the ratio of observations to independent variables, which affected generalizability of results, was 118:1 (712 vs. 6). This ratio not only met the guideline for minimum ratio of 5:1, but also met the recommended ratio of 50:1 when a stepwise estimation technique was applied (Hair et al., 2010, p. 175). Therefore, the generalizability of findings from the regression analysis in this study was validated.

4.5.2.2 Testing of Assumptions: Linearity, Homoscedasticity, and Normality

Three assumptions – linearity, homoscedasticity, and normality – for individual variables in the multiple regression analysis were tested in the following series of graphical and statistical assessments before model estimation.

The assumption of linearity was supported by the results shown in Appendix 20. The matrix presents all combinations of the nine metric variables (six independent variables and three dependent variables). The diagonal of the matrix displays the histograms of the variables. The upper portion of the matrix demonstrated the bivariate correlation values, and the lower portion depicts their scatterplots. A visual inspection of the scatterplots found that, except for relationships between the three dependent variables, the highest correlation was between *Social Value* and *Personal Interest* as the observations were closely aligned in a linear pattern. This was also identified by their relatively high bivariate correlation value of .689. On the contrary, observations between *Fallback Career* and *Enthusiasm* were identified as almost lack of correlations because of the widely dispersed points in the scatterplot with the correlation value of -.009. Furthermore, the combinations on the scatterplots did not reveal any apparent nonlinear relationships between dependent and independent variables. Thus, variable transformations for linearity were not deemed as a requisite.

To test homoscedasticity, the nine metric variables were examined across six nonmetric variables in the data set by Levene tests (see Appendix 21). For the six independent variables on career-choice motivation, no one had noticeable heteroscedasticity problems with any of the six nonmetric variables except for *Job Advantages*, which showed pattern of heteroscedasticity on one nonmetric variable ("year of study"). For the three dependent variables about study engagement, *Total Engagement* showed a heteroscedasticity problem with one nonmetric variable ("family income"), and *Persistence* had heteroscedasticity

problems with two nonmetric variables ("gender" and "family income"). Under no circumstances did any of six nonmetric variables have more than two problematic metric variables. The relatively small number of heteroscedasticity problems and the scarcity of continuous problems across one nonmetric variable suggested that the violations of homoscedasticity were minimal and no remedial actions were demanded.

The diagnostic assessments for normality of the variables included both graphical analyses and empirical measures. In the graphical analyses, histograms which represented frequency of data values within data categories of each metric variable were superimposed with their distribution curves (see the diagonal portrayals in Appendix 20). Visual examinations of the curves found that they were similar to normal curves. Moreover, normal probability plots (P-P Probability Plots), which compared cumulative actual distribution and cumulative normal distribution for each of the nine metric variables, were depicted (see Appendix 22). Visual checks on these P-P plots found that most of plotted data values closely followed the straight diagonal line which was representing normal distribution.

In the statistical tests for normality, shapes of the data values were reflected by skewness and kurtosis, and the level of significance for differences from a normal distribution was calculated by the modified Kolmogorov-Smirnov tests (see Appendix 23). Considering that the relatively large sample size (N=712) would make the tests of significance quite sensitive, the significance level was set at .01. Then, among the nine metric variables, four (*Teacher Influence, Job Advantages, Others' Suggestion, a*nd *Fallback Career*) were found deviation from normal distributions in the overall normality tests at the significance level of .01. Based on the information from both the variables' shape characteristics described by skewness and kurtosis (see Appendix 23) and the normal possibility plots (see Appendix 22), possible data transformations (squared, cubed, etc.) for the four variables with non-normal distributions were carried out. The normality of *Job Advantages* was improved to the nonsignificant level by taking a squared term; however, the normality of the other three variables was not able to be improved by any of the transformations. (The improved value of *Job Advantages* and the original values of the three non-normality variables were used in the following regression analysis. No difference was found when comparing results of regression analysis with the improved value of *Job Advantages* and those with its original value).

Although four of the nine variables violated statistical tests for normality and transformations were not sufficient remedies for three of them, the following regression analyses were

deemed robust for two reasons. Firstly, the previous tests of homoscedasticity for the variables found very little violation, which suggested that non-normality of these variables did not cause significant problems of heteroscedasticity. Secondly, the impact of violating normality assumption for multiple regression analysis differed due to sample size. According to Hair et al. (2010), the effects of non-normality would be detrimental and serious when the sample sizes were fewer than 50 cases. However, the effects effectively diminished when the sample sizes surpassed 200 cases (pp. 72-77). Thus, with the sample size of 712 cases in this study, the effects of non-normality discussed above would be negligible.

4.5.2.3 Multiple Regression Model for Study Engagement and Overall Model Fit

To estimate the regression model which regarded *Total Engagement* (Study Engagement) as the dependent variable, the method of stepwise estimation was employed to select independent variables from the six types of career-choice motivation for inclusion in the regression variate. The stepwise estimation procedure started with selecting the best predictor for the dependent variable. Additional independent variables were added if their partial correlation coefficients were statistically significant; however, the independent variables might be dropped if their predictive power declined to a nonsignificant level after other variables were added. Initially, all the six types of career-choice motivation were placed in the software (SPSS 22.0) as independent variables to predict *Total Engagement* and the whole process was completed automatically by the software. After three steps of selecting, three of the six types of career-choice motivation were included into the final regression model as independent variables to predict levels of pre-service teacher's total engagement in teacher training. The three predictors of total engagement were *Social Value (Altruistic Motivation), Others' Suggestion,* and *Personal Interest (Intrinsic Motivation)*. Results of every step were recorded in the following tables and appendixes.

Table 19 demonstrates a step-by-step summary of the overall model fit. The first variable added into the multiple regression model was *Social Value* which explained 21 percent of the variance (R^2=.21). Two more variables (*Others' Suggestion* and *Personal Interest*) were added into the equation to arrive at the final regression model. These two variables, although statistically significant, made much smaller contributions to the overall model. After the second and the third variables were added into the regression model, the R^2 increased by 1.5

percent and 1.0 percent respectively and the standard error of the estimate decreased slightly. These measures demonstrated that the overall model fit was slightly improved after the two variables were added into the model.

Table 19: Model Summary of Stepwise Regression for Total Engagement

Overall Model Fit					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.458[a]	.210	.209	.808	.210	188.760	1	710	.000
2	.474[b]	.225	.223	.801	.015	13.530	1	709	.000
3	.485[c]	.235	.232	.797	.010	9.193	1	708	.003

Note: [a] Predictors: (Constant), Social Value; [b] Predictors: (Constant), Social Value, Others' Suggestion; [c] Predictors: (Constant), Social Value, Others' Suggestion, Personal Interest

The final regression model with the three independent variables (*Social Value, Others' Suggestion*, and *Personal Interest*) explained 23.5 percent of the variance of pre-service teachers' total study engagement in teacher training (R^2 = .235, see Table 19). This result should be generalizable because the ratio of observations to independent variables was 237:1 in the final model. Moreover, the standard error of estimate in the final model was .797, which meant that at the 95% confidence level, the margin of error for any predicted value of *Total Engagement* of Chinese pre-service teacher could be calculated at ±1.56 (±1.96X0.797).

The ANOVA analysis (see Appendix 24) provided information for assessing the overall model fit according to values of the F ratios. The total sum of squares was 587.066, which was reduced by 23.4% (137.815÷587.066) by using values of the three independent variables in the third model. This reduction was deemed statistically significant with an F ratio of 72.397 and a significant level of .01.

Table 20 shows that the three regression coefficients and the constant in the final regression model were all significant at the .01 level. The impact of multicollinearity was tested by the values of tolerance and VIF. Of the three variables, one (*Social Value*) had tolerance value just under .50 which indicated that approximately one half of its variance was accounted by other variables in the regression model. However, this variable was the first to enter the regression model. Examination of the values of variance inflation factor (VIF) found that none of them surpassed the value of 3.

Table 20: Coefficients of Variables Entered into the Regression Model

	Regression Coefficients			Statistical Significance		Correlations			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1 Constant	2.539	.143		17.711	.000					
Social Value	.399	.029	.458	13.739	.000	.458	.458	.458	1.000	1.000
2 Constant	2.329	.153		15.202	.000					
Social Value	.353	.031	.405	11.225	.000	.458	.388	.371	.840	1.191
Others' Suggestion	.104	.028	.133	3.678	.000	.295	.137	.122	.840	1.191
3 Constant	2.273	.153		14.814	.000					
Social Value	.274	.041	.315	6.764	.000	.458	.246	.222	.498	2.007
Others' Suggestion	.093	.028	.119	3.284	.001	.295	.123	.108	.826	1.211
Personal Interest	.103	.034	.139	3.032	.003	.399	.113	.100	.516	1.937

Note: The dependent variable is "Total Engagement".

A further examination of the partial correlation values for the three variables excluded from entering the multiples regression model found that none of them needed to be added into the model as they had no significant partial correlation value at the .05 level (see Appendix 25). Furthermore, all the variables in the final regression model had a significant partial correlation value and none of them needed to be dropped from the model (see Table 20). Therefore, no more variables were considered for entering or existing and the regression model was finalised.

4.5.2.4 Assessing Variates for Assumptions of Regression Analysis and Identifying Outliers

The standardised residuals were applied to test assumptions for regression variates. First of all, the basic type of residual plot (see Appendix 26) demonstrated no pattern of increasing or decreasing residuals and no nonlinear pattern to the residuals. Homoscedasticity of the set of independent variables and linearity of the overall equation, therefore, were both ensured. Meanwhile, the partial regression plots (see Appendix 28) showed no nonlinear pattern for all the three independent variables in the equation, which met the assumption of linearity for each independent variable in the regression model. Moreover, the residuals, which were used

as the dependent, were plotted by several variables, such as participants ID and each independent variable to test independence of these residuals. Results showed that no consistent pattern emerged and the independence of the residuals was supported. Finally, a visual inspection of the normal P-P plot of regression standardised residual (see Appendix 27) found that no observations consistently or substantially departed from the diagonal, which meant the residuals represented a normal distribution. Therefore, the assumption of normality for the regression variates was met.

The residuals were also used to identify outliers – the potential observations which were not predicted well by the regression model. The studentised residuals for each observation were plotted in Appendix 29, which classified residuals with a value greater than three (default value in SPSS 22.0) as statistically significant residuals. A visual examination of the figure found that among the 712 observations in this study, ten (14, 158, 186, 187, 229, 335, 388, 409, 419, and 576) were classified as outliers. Questionnaires of the ten observations were examined and no clear evidence was found to show the participants did not fill in the questionnaires carefully. Therefore, the researcher decided not to delete them.

4.5.2.5 Examining the Predictive Equation

The multiple regression analysis with the method of stepwise finalised with the regression model (see model 3 in Table 20) where three types of career-choice motivation were selected as independent variables to predict study engagement of Chinese pre-service teachers. According to B values of regression coefficents for each independent variable (see model 3 in Table 20), the equation to predict *Total Engagement* (Study Engagement) with the three independent variables (*Social Value/Altrinsic Motivation , Others' Suggestion,* and *Personal Interest/Intrinsic Motivation*) was able to be written as:

$$Y_{\text{Total Engagement}} = 2.273 + .274\ X_{\text{Social Value}} + .093\ X_{\text{Others' Suggestion}} + .103\ X_{\text{Personal Interest}}$$

This equation meant that, at 23.5% possibility level, Chinese pre-service teachers' study engagement could be predicted by their ratings on three types of career-choice motivation. All the three variables in the equation had positive coefficients, which suggested that greater emphases on *Social Value (Altruistic Motivation), Others' Suggestion*, and *Personal Interest (Intrinsic Motivation)* as their motivation to choose teaching would predict higher study engagement in teacher-training programmes.

The constant provided no insight for interpretation because it was almost impossible for pre-service teachers to rate zero for all the three variables. The relative importance of the three variables in the regression equation was different. This was reflected by measuring Beta weight of the three variables in the regression model (see Beta values in model 3 of Table 20). Viewing the magnitudes of Beta for each variable indicated that *Social Value* (*Altruistic Motivation*) was the most important variable in the regression model, the Beta value of which (Beta =.315) was over two times greater than that of *Personal Interest* (Intrinsic Motivation, Beta =.139) and almost three times greater than that of *Others' Suggestion* (Beta=.119).

4.5.2.6 Validating the Multiple Regression Results

Firstly, the sufficient ratio of observations to variables (712 vs. 3) in the regression model suggested the generality of the model. Secondly, the slight difference between the adjusted R square value (.232) and the R square value (.235) in the final regression model (see Table 19) indicated the lack of overfitting of the regression model.

Moreover, two approaches were applied to test validity of the regression equation. In one approach, the whole 712 observations were divided into two subgroups: the policy-funded pre-service teachers (PFPT group, N=309) and the self-sponsored pre-service teachers (SSPT group, N=403). The stepwise multiple regression analysis was conducted in the two groups respectively with the same dependent and independent variables to estimate regression models. The regression results for the PFPT group (see Appendix 30) and for the SSPT group (see Appendix 31) were both very similar to the original regression model with total 712 cases: similar adjusted R square value (.205 for PFPT group and .255 for SSPT group), three same independent variables in the regression model, and similar regression coefficients for each regression variate.

The second approach was testing whether the addition of nonmetric independent variables would improve the regression model. The six types of career-choice motivation together with eight demographic variables ("gender", "ethnicity", "home region", "year of study", "age group", "family income", "college entrance exam scores", and "funding source") of 712 Chinese pre-service teachers were selected as the independent variables to predict their study engagement (*Total Engagement*) in a stepwise multiple regression analysis. The results (see Appendix 32) show that the same three types of career-choice motivation (*Social Value, Others' Suggestion,* and *Personal Interest*) with similar coefficient values to the original

model (see Table 19 and Table 20), together with three demographic variables ("gender", "exam score", and "home region"), entered the final regression model. All these measures validated the original multiple regression results when no nonmetric variables were added in the model.

4.5.2.7 Multiple Regression Models for Persistence and Enthusiasm: Summarizing Main Findings

The stepwise multiple regression analysis was conducted in the 712 observations to predict *Persistence* and *Enthusiasm* respectively by the six types of career-choice motivation as independent variables. The same procedure as the previous multiple regression analysis for *Total Engagement* was taken. Assumptions of multiple regression analysis were tested and regression results were validated. For the purpose of avoiding repetition, the following section summarised the regression results.

To predict *Persistence*, five of the six independent variables entered the final regression model. The final regression model explained 18.9 percent (adjusted R square =.189) of the variance of the dependent variable. According to coefficients in the model, the regression equation was written as:

$$Y_{\text{Persistence}} = 1.853 + .244\ X_{\text{Social Value}} + .127\ X_{\text{Others' Suggestion}} + .100\ X_{\text{Fallback Career}} + .118\ X_{\text{Personal Interest}} + (-.010)\ X_{\text{Job Advantages}}$$

Three of the six variables entered the final regression model as independent variables to predict *Enthusiasm*, which explained 24.1 percent (adjusted R square) of dependent variance. Based on the regression coefficients, the regression equation was formulated as:

$$Y_{\text{Enthusiasm}} = 2.431 + .293\ X_{\text{Social Value}} + .125\ X_{\text{Personal Interest}} + .011\ X_{\text{Job Advantages}}$$

4.5.3 Summary

To conclude, bivariate correlation analyses showed that for Chinese pre-service teachers, all the types of teaching career choice motivation, except for *Fallback Career*, had statistically significant correlations with *Study Engagement* and both of its dimensions. However, when the other five types of career-choice motivation were controlled, *Teacher Influence* showed no significant correlation with *Study Engagement* or either of its dimensions, but the rest five

types of career-choice motivation had significant partial correlations with *Study Engagement* or one of its dimensions at .01 level.

The multiple regression analysis (stepwise) produced three regression models to predict *Persistence*, *Enthusiasm* and *Total Engagement* (study engagement) respectively using different types of career-choice motivation as independent variables. The regression equation to predict *Study Engagement* (*Total Engagement*) was: $Y_{\text{Total Engagement}} = 2.273 + .274\ X_{\text{Social Value}} + .093\ X_{\text{Others' Suggestion}} + .103\ X_{\text{Personal Interest}}$. However, the regression equations to predict the two dimensions of *Study Engagement* were different. For *Persistence*, the regression equation was: $Y_{\text{Persistence}} = 1.853 + .244\ X_{\text{Social Value}} + .127\ X_{\text{Others' Suggestion}} + .100\ X_{\text{Fallback Career}} + .118\ X_{\text{Personal Interest}} + (-.010)\ X_{\text{Job Advantages}}$, and for *Enthusiasm*, it was: $Y_{\text{Enthusiasm}} = 2.431 + .293\ X_{\text{Social Value}} + .125\ X_{\text{Personal Interest}} + .011\ X_{\text{Job Advantages}}$. One of the common points of the three equations was that *Social Value (Altruuistic Motivation)* and *Personal Interest (Intrinsic Motivation)* were both selected as important independent variables with positive signs to predict *Study Enegagement* and its two dimensions in all the three models.

According to both bivariate and partial correlation values, *Social Value (Altruistic Motivation)* and *Personal Interest (Intrinsic Motivation)* were both positively correlated with every dimension of *Study Engagement* as well as the *Total Engagement* at the statistically significance level of .01. Moreover, in the regression equations to predict *Study Engagement* and its two dimensions, both *Social Value (Altruistic Motivation)* and *Personal Interest (Intrinsic Motivation)* entered and had a positive sign. These results, therefore, could indicate that the more the Chinese pre-service teachers emphasise altruistic and intrinsic motivations to teach, the higher the level of study engagement they experience in teacher training, and vice versa.

The partial correlation values and the regression models to predict *Persistence* and *Total Engagement* suggested that *Job Advantages (Extrinsic Motivation)* had significantly negative correlation with the *Persistence*, but it had no statistically significant correlation with *Total Engagement*. However, the bivariate correlation results and the regression model to predict *Enthusiasm* suggested that *Job Advantages (Extrinsic Motivation)* had significantly positive relationship with the *Enthusiasm* of study engagement. Therefore, it seemed that there was not enough evidence to support the hypothesis that the more the Chinese pre-service teachers

emphasise extrinsic motivations to teach, the lower the level of study engagement they experience in teacher training.

4.6 Career-Choice Motivation of PFPTs: Importance and Changes

The fourth quantitative research question was "Of the policy-funded pre-service teachers (the PFPTs), how important is each type of career-choice motivation, and how does this change according to different demographic variables, including gender, ethnicity, home region, family income, year of study, and National College Entrance Examination scores". To answer this question, quantitative data collected from the 309 PFPTs were analysed. The instrument used for collecting these data was the Chinese version of Career-Choice Motivation scale (the CCM scale, see Part B in Appendix 7) with reduced set of 29 variables. The following analyses were all based on the summated scale scores rated by the 309 policy-funded students on the reduced career-choice motivation scale.

4.6.1 Importance Levels of the Six Types of Career-Choice Motivation for PFPTs

Descriptive statistics on the summated scale scores/mean values (see Table 21) showed that the policy-funded pre-service teachers placed different levels of importance on the six types of career-choice motivation. On the 7-point scale, they ranked *Teacher Influence* as the most important (M=5.229, SD=1.260), and *Others' Suggestion* (M=4.132, SD=1.145) and *Fallback Career* (M= 3.601, SD=1.316) as the last two important motivational factors for their decision to teach.

Table 21: Descriptive Statistics for the Importance of the Six Types of Career-Choice Motivation for PFPTs (N= 309)

Career-Choice Motivation	Mean	SD	Ranking of Importance [a]
Teacher Influence	5.229	1.260	1
Job Advantages (Extrinsic Motivation)	4.890	.921	2
Social Value (Altruistic Motivation)	4.829	1.067	2
Personal Interest (Intrinsic Motivation)	4.787	1.177	2
Others' Suggestion	4.132	1.145	5
Fallback Career	3.601	1.316	6

Note: [a] Based on the Mean values, SD, and the significance level of difference between them (see Table 22).

However, further Paired-Samples T-Test (see Table 22) showed that there was no statistically significant difference (p>.05) between their ratings on *Job Advantages (Extrinsic Motivation)* (M=4.890, SD=.921), *Social Value (Altruistic Motivation)* (M=4.829, SD=1.067), and *Personal Interest (Intrinsic Motivation)* (M=4.787, SD=1.177). Therefore, the importance levels of the three types of career-choice motivation were all marked as "2" (see Table 21).

Table 22: Results of Paired-Samples T-Test on Summated Scores of the Six Types of Career-Choice Motivation for PFPTs (N=309)

		Mean	SD	t	df	Sig. (2-tailed)
Pair 1	Teacher Influence – Job Advantages (Extrinsic Motivation)	.339	1.194	4.990**	308	<.001
Pair 2	Job Advantages (Extrinsic Motivation) – Social Value (Altruistic Motivation)	.062	1.015	1.067	308	.287
Pair 3	Social Value (Altruistic Motivation) – Personal Interest (Intrinsic Motivation)	.042	.810	.907	308	.365
Pair 4	Job Advantages (Extrinsic Motivation) – Personal Interest (Intrinsic Motivation)	.103	1.086	1.673	308	.095
Pair 5	Personal Interest (Intrinsic Motivation) – Others Suggestion	.655	1.325	8.690**	308	<.001
Pair 6	Others Suggestion – Fallback Career	.531	1.641	5.684**	308	<.001

4.6.2 Gender Difference in Career-Choice Motivation for PFPTs

The independent-samples t-test and the ANOVA were conducted to evaluate different demographic variables' influence on PFPTs' career-choice motivation. As indicated in Table 23, male and female PFPTs rated five of the six types of career-choice motivation significantly different (p<.01). Female PFPTs rated the importance level of *Teacher Influence*, *Job Advantages (Extrinsic Motivation)*, *Social Value (Altruistic Motivation)*, and *Personal Interest (Intrinsic Motivation)* as their career-choice motivation significantly higher (p<.01) than their male counterparts. However, male PFPTs rated *Fallback Career* significantly higher (p<.01) than their female peers. No statistically significant differences were found in the responses to *Others' Suggestion* of the two groups of PFPTs. Therefore, the assumption was supported that female PFPTs would emphasise altruistic and intrinsic motivations to

teach more than male PFPTs, but the expectation that male PFPTs would emphasise extrinsic motivation more than their female counterparts was negated.

Table 23: Independent-Samples T-Test for Career-Choice Motivation between Male and Female PFPTs

Career-Choice Motivation	Gender	N	M	SD	t	df	p
Teacher Influence	Male	97	4.804	1.351	-4.116**	307	<.001
	Female	212	5.424	1.169			
Job Advantages (EM)	Male	97	4.497	.992	-4.950**	159	<.001
	Female	212	5.070	.829			
Social Value (AM)	Male	97	4.541	1.131	-3.257**	307	.001
	Female	212	4.961	1.012			
Personal Interest (IM)	Male	97	4.491	1.256	-3.029**	307	.003
	Female	212	4.923	1.116			
Others' Suggestion	Male	97	4.048	1.136	-.877	307	.381
	Female	212	4.171	1.150			
Fallback Career	Male	97	4.017	1.319	3.834**	307	<.001
	Female	212	3.411	1.273			

Note: t test for unequal variances was used for "Job Advantages" only.

4.6.3 Ethnicity Difference in Career-Choice Motivation for PFPTs

According to the results presented in Table 24, differences between Han majority PFPTs and ethnic minority PFPTs were found in their emphases on *Job Advantages (Extrinsic Motivation)* and *Fallback Career* at the significance level of .05. Further analysis indicated that the Han PFPTs rated *Job Advantages (Extrinsic Motivation)* significantly higher than minority PFPTs (4.958 vs. 4.671), whereas the minority PFPTs perceived *Fallback Career* as a significantly more important motivation to choose a teaching career than the Han PFPTs (3.881 vs. 3.515). There were no statistically significantly differences in the other four types of career-choice motivation between the Han and minority PFPTs.

Table 24: Independent-Samples T-Test for Career-Choice Motivation between Han and Minority PFPTs

Career-Choice Motivation	Ethnicity	N	M	SD	t	df	p
Teacher Influence	Han	236	5.275	1.240	1.145	307	.253
	Minority	73	5.082	1.322			
Job Advantages(EM)	Han	236	4.958	.932	2.347*	307	.020
	Minority	73	4.671	.855			
Social Value(AM)	Han	236	4.864	1.095	1.055	307	.292
	Minority	73	4.714	.971			
Personal Interest(IM)	Han	236	4.817	1.213	.794	307	.428
	Minority	73	4.691	1.056			
Others' Suggestion	Han	236	4.063	1.188	-1.915	307	.056
	Minority	73	4.356	.969			
Fallback Career	Han	236	3.515	1.340	-2.086*	307	.038
	Minority	73	3.881	1.199			

4.6.4 Home Region Difference in Career-Choice Motivation for PFPTs

As showed in Table 25, the PFPTs from urban areas rated *Job Advantages (Extrinsic Motivation)* significantly higher than those from rural areas (5.058 vs. 4.787, $p<.05$). However, there were no statistically significant differences in the other five types of career-choice motivation between the two groups of PFPTs. Therefore, it was supported that the PFPTs from urban areas would emphasise extrinsic career-choice motivation more than those from rural areas.

Table 25: Independent-Samples T-Test for Career-Choice Motivation between PFPTs from Rural Areas and Urban Areas

Career-Choice Motivation	Home Region	N	M	SD	t	df	p
Teacher Influence	Rural areas	189	5.164	1.275	-1.151	307	.251
	Urban areas	120	5.333	1.235			
Job Advantages(EM)	Rural areas	189	4.784	.940	-2.568*	307	.011
	Urban areas	120	5.058	.869			
Social Value(AM)	Rural areas	189	4.873	1.052	.903	307	.367
	Urban areas	120	4.760	1.091			
Personal Interest(IM)	Rural areas	189	4.804	1.182	.313	307	.754
	Urban areas	120	4.761	1.174			
Others' Suggestion	Rural areas	189	4.165	1.149	.637	307	.525
	Urban areas	120	4.080	1.142			
Fallback Career	Rural areas	189	3.668	1.288	1.115	307	.266
	Urban areas	120	3.497	1.357			

4.6.5 Family Income Difference in Career-Choice Motivation for PFPTs

The results of ANOVA (see Table 26) showed that the three groups of PFPTs with different family income background had no significant difference in five of the six motivation types for choosing teaching as a career. For *Job Advantage (Extrinsic Motivation)*, however, the PFPTs with different family incomes placed significantly different levels of emphasis on it ($F=3.991$, $p<.05$) when they decided to become a teacher.

Table 26: ANOVA for Career-Choice Motivation across Three Family Income Groups of PFPTs

Career-Choice Motivation	Family Income	N	M	SD	F	p
Teacher Influence	Low Income Group	101	5.074	1.324	1.152	.317
	Medium Income Group	104	5.293	1.263		
	High Income Group	104	5.317	1.193		
Job Advantages(EM)	Low Income Group	101	4.719	.975	3.911*	.021
	Medium Income Group	104	4.875	.917		
	High Income Group	104	5.074	.845		
Social Value (AM)	Low Income Group	101	4.819	1.044	.010	.990
	Medium Income Group	104	4.840	1.112		
	High Income Group	104	4.828	1.055		
Personal Interest(IM)	Low Income Group	101	4.733	1.129	.162	.850
	Medium Income Group	104	4.811	1.202		
	High Income Group	104	4.817	1.209		
Others' Suggestion	Low Income Group	101	4.182	1.154	.604	.547
	Medium Income Group	104	4.032	1.225		
	High Income Group	104	4.186	1.056		
Fallback Career	Low Income Group	101	3.673	1.261	.225	.799
	Medium Income Group	104	3.558	1.217		
	High Income Group	104	3.577	1.465		

To test detailed differences, a Post Hoc test with the method of LSD was conducted on *Job Advantages (Extrinsic Motivation)* across the three groups of PFPTs with different family incomes after their equal variances were assumed ($p>.05$) by variance homogeneity test. The results (see Table 27) demonstrated that the high family income group of PFPTs perceived *Job Advantages (Extrinsic Motivation)* as a significantly more important factor in influencing their decision to become a teacher than did the PFPTs in the low family income group. Therefore, it was supported that the PFPTs with high family income would emphasise extrinsic career-choice motivation more than those with low family income.

Table 27: Post Hoc Test for Job Advantages (Extrinsic Motivation) across Three Family Income Groups of PFPTs

Family Income (I)	Family Income (J)	Mean Difference (I-J)	Std. Error	Sig.
Low Income Group	Medium Income Group	-.15647	.12756	.221
	High Income Group	-.35565**	.12756	.006
Medium Income Group	Low Income Group	.15647	.12756	.221
	High Income Group	-.19918	.12662	.117

4.6.6 Year of Study Difference in Career-Choice Motivation for PFPTs

Results of an independent samples t test (see Table 28) indicated that there were statistically significant differences ($p<.01$) in half of the six types of career-choice motivation between first-year and last-year PFPTs. The first-year PFPTs rated the importance of motivations to teach including *Teacher Influence*, *Job Advantages (Extrinsic Motivation)*, and *Social Value (Altruistic Motivation)* significantly higher than their last-year counterparts at the significance level of .01. No statistically significant differences were found in the other three types of career-choice motivation.

Table 28: Independent-Samples T-Test for Career-Choice Motivation between First-Year and Last-Year PFPTs

Career-Choice Motivation	Year of Study	N	M	SD	t	df	p
Teacher Influence	First year	163	5.463	1.197	3.501**	307	.001
	Last year	146	4.969	1.282			
Job Advantages(EM)	First year	163	5.079	.797	3.844**	276	<.001
	Last year	146	4.680	1.004			
Social Value(AM)	First year	163	5.015	1.026	3.287**	307	.001
	Last year	146	4.621	1.078			
Personal Interest(IM)	First year	163	4.878	1.177	1.435	307	.152
	Last year	146	4.686	1.173			
Others' Suggestion	First year	163	4.153	1.181	.335	307	.738
	Last year	146	4.109	1.107			
Fallback Career	First year	163	3.496	1.276	-1.485	307	.139
	Last year	146	3.719	1.353			

Note: t test for unequal variances was used for "Job Advantages" only.

4.6.7 NCEE Score Difference in Career-Choice Motivation for PFPTs

Results of ANOVA (see Table 29) showed that for the three groups of PFPTs with low, medium, and high National College Entrance Examination (NCEE) scores respectively, there was no significant difference in their six types of career-choice motivation.

Table 29: ANOVA for Career-Choice Motivation across Three Groups of PFPTs with Different National College Entrance Examination (NCEE) Scores

Career-Choice Motivation	NCEE Scores	N	M	SD	F	p
Teacher Influence	Low Score Group	128	5.090	1.285	1.728	.179
	Medium Score Group	131	5.279	1.206		
	High Score Group	50	5.460	1.320		
Job Advantages(EM)	Low Score Group	128	4.821	.957	1.825	.163
	Medium Score Group	131	4.875	.909		
	High Score Group	50	5.111	.843		
Social Value(AM)	Low Score Group	128	4.772	1.108	.606	.546
	Medium Score Group	131	4.833	1.031		
	High Score Group	50	4.968	1.066		
Personal Interest(IM)	Low Score Group	128	4.753	1.162	.144	.866
	Medium Score Group	131	4.795	1.238		
	High Score Group	50	4.857	1.068		
Others' Suggestion	Low Score Group	128	4.125	1.142	.013	.987
	Medium Score Group	131	4.145	1.156		
	High Score Group	50	4.120	1.150		
Fallback Career	Low Score Group	128	3.576	1.310	.114	.893
	Medium Score Group	131	3.598	1.365		
	High Score Group	50	3.680	1.220		

4.6.8 Summary

To summarise, the statistical results showed that the most and least important types of career-choice motivation for the policy-funded pre-service teachers (PFPTs) were *Teacher Influence* and *Fallback Career* respectively. There was no statistically significant difference in PFPTs' rating on *Job Advantages (Extrinsic Motivation)*, *Social Value (Altruistic Motivation)*, and *Personal Interest (Intrinsic Motivation)*. Of the PFPTs, the females placed a significantly

greater emphasis on *Teacher Influence*, *Job Advantages (Extrinsic Motivation)*, *Social Value (Altruistic Motivation)*, and *Personal Interest (Intrinsic Motivation)* than the males, while the male group perceived teaching as a *Fallback Career* choice as significantly more important than the female group. The Han PFPTs emphasised *Job Advantages (Extrinsic Motivation)* significantly more than the minority PFPTs, while the minority group rated *Fallback Career* significantly higher than the Han group. The PFPTs from urban areas emphasised *Job Advantages (Extrinsic Motivation)* significantly more than those form rural areas. The group of PFPTs with high family income emphasised *Job Advantages (Extrinsic Motivation)* significantly more than those with low family income. The first-year PFPTs perceived *Teacher Influence*, *Job Advantages (Extrinsic Motivation)*, and *Social Value (Altruistic Motivation)* as significantly more important than the last-year PFPTs. Lastly, the PFPTs' National College Entrance Examination scores seemed to have no significant influence on their motivation to choose teaching as a future career.

4.7 Study Engagement of PFPTs: Strength and Changes

The fifth quantitative research question was "what is the strength of study engagement of the policy-funded pre-service teachers (the PFPTs), and how does this change according to different demographic variables?" This question was followed by hypotheses about the influence of the PFPTs' demographic information including "gender", "ethnicity", "home region", "family income", "year of study", and "National College Entrance Examination (NCEE) scores" on their strength of study engagement. Data collected by the reduced Chinese version of the Student Version of Utrecht Work Engagement Scale (the UWES-S-17 scale, see Appendix 10) from 309 PFPTs were analysed.

4.7.1 Strength of Study Engagement for PFPTs

The descriptive statistics (see Table 30) showed that, on a seven-point scale, the PFPTs' average level of Study Engagement (*Total Engagement*, M=4.400, SD=.880) was slightly over the mean point of four. For the two dimensions of study engagement, further Paired-Samples T-Test showed that the PFPTs have a significantly lower level of persistence than enthusiasm (4.161vs 4.638, t= -11.522, df=308, p<.001).

Table 30: Descriptive Statistics for the Strength of Study Engagement for PFPTs (N= 309)

Study Engagement	Mean	Std. Deviation
Persistence	4.161	.950
Enthusiasm	4.638	.955
Total Engagement	4.400	.880

4.7.2 Gender Difference in Study Engagement for PFPTs

To test whether demographic variables, such as "gender", "ethnicity", "home region", and "year of study", would have influences on PFPTs' study engagement, an Independent-Samples T-Test was conducted on the *Total Engagement* and its two dimensions. Moreover, the method of ANOVA was applied to test whether "family income" and "National College Entrance Examination (NCEE) scores" would have influences on their study engagement.

Results displayed in Table 31 demonstrated that the male PFPTs had a significantly higher level of *Persistence* than their female counterparts (4.341 vs. 4.078, $p<.05$). However, male and female PFPTs had no statistically significant differences in the level of *Enthusiasm* or total study engagement.

Table 31: Independent-Samples T-Test for Study Engagement between Male and Female PFPTs

Study Engagement	Gender	N	M	SD	t	df	p
Persistence	Male	97	4.341	1.006	2.270*	307	.024
	Female	212	4.078	.915			
Enthusiasm	Male	97	4.615	.995	-.292	307	.770
	Female	212	4.649	.938			
Total Engagement	Male	97	4.478	.938	1.059	307	.290
	Female	212	4.364	.852			

4.7.3 Ethnicity Difference in Study Engagement for PFPTs

As demonstrated in Table 32, there was no statistically significant difference between Han and minority PFPTs in their strength levels of total study engagement and its two dimensions.

Table 32: Independent-Samples T-Test for Study Engagement between Han and Minority PFPTs

Study Engagement	Ethnicity	N	M	SD	t	df	p
Persistence	Han	236	4.132	.962	-.957	307	.340
	Minority	73	4.254	.911			
Enthusiasm	Han	236	4.667	.944	.951	307	.342
	Minority	73	4.545	.990			
Total Engagement	Han	236	4.400	.885	-.001	307	1.000
	Minority	73	4.400	.870			

4.7.4 Home Region Difference in Study Engagement for PFPTs

Another Independent-Samples T-Test was conducted to evaluate if the PFPTs from rural and urban areas would differ significantly in their strength levels on study engagement. As showed in Table 33, the mean strength levels of the PFPTs from rural areas were statistically significantly higher than those from urban areas in *Persistence* (4.246 vs. 4.027, $p<.05$), *Enthusiasm* (4.761 vs. 4.445, $p<.01$) and total study engagement (4.503 vs. 4.236, $p<.01$). Therefore, it was supported that the PFPTs coming from rural areas would have a higher level of study engagement than those from urban areas.

Table 33: Independent-Samples T-Test for Study Engagement between PFPTs from Rural and Urban Areas

Study Engagement	Home Region	N	M	SD	t	df	p
Persistence	Rural areas	189	4.246	.939	1.983*	307	.048
	Urban areas	120	4.027	.956			
Enthusiasm	Rural areas	189	4.761	.924	2.860**	307	.005
	Urban areas	120	4.445	.974			
Total Engagement	Rural areas	189	4.503	.855	2.623**	307	.009
	Urban areas	120	4.236	.898			

4.7.5 Family Income Difference in Study Engagement for PFPTs

For the three groups of PFPTs with different family income, results from ANOVA (see Table 34) suggested there was no significant difference among them in their study engagement.

Table 34: ANOVA for Study Engagement among PFPTs in Different Family Income Groups

Study Engagement	Family Income	N	M	SD	F	p
Enthusiasm	Low Income Group	101	4.716	1.002	.793	.453
	Medium Income Group	104	4.550	.918		
	High Income Group	104	4.652	.947		
Persistence	Low Income Group	101	4.269	1.019	1.682	.188
	Medium Income Group	104	4.030	.853		
	High Income Group	104	4.188	.969		
Total Engagement	Low Income Group	101	4.493	.946	1.400	.248
	Medium Income Group	104	4.290	.800		
	High Income Group	104	4.420	.889		

4.7.6 Year of Study Difference in Study Engagement for PFPTs

No significant difference was found between first-year PFPTs and their last-year counterparts on their student engagement according to results of independent-samples t-test (see Table 35).

Table 35: Independent-Samples T-Test for Study Engagement between First-Year and Last-Year PFPTs

Study Engagement	Year of Study	N	M	SD	t	df	p
Persistence	First Year	163	4.122	.951	-.754	307	.451
	Last Year	146	4.204	.952			
Enthusiasm	First Year	163	4.712	.946	1.443	307	.150
	Last Year	146	4.555	.961			
Total Engagement	First Year	163	4.417	.873	.373	307	.710
	Last Year	146	4.380	.891			

4.7.7 NCEE Score Difference in Study Engagement for PFPTs

Examining the results of AVONA (see Table 36) found that there was no significant difference in study engagement among the three groups of PFPTs with different National College Entrance Examination (NCEE) scores.

Table 36: ANOVA for Study Engagement among PFPTs with Different Scores in the National College Entrance Examination (NCEE)

Study Engagement	NCEE Scores	N	M	SD	F	p
Enthusiasm	Low Score Group	128	4.702	.922	1.615	.201
	Medium Score Group	131	4.528	.989		
	High Score Group	50	4.767	.934		
Persistence	Low Score Group	128	4.253	.899	1.461	.234
	Medium Score Group	131	4.056	1.015		
	High Score Group	50	4.203	.896		
Total Engagement	Low Score Group	128	4.478	.842	1.725	.180
	Medium Score Group	131	4.292	.927		
	High Score Group	50	4.485	.839		

4.7.8 Summary

The overall level of study engagement of the PFPTs was not high (M=4.400, SD=.880). The male PFPTs had a significantly higher level of *Persistence* than the female PFPTs, but they had no significant difference in *Enthusiasm* and *Total Engagement*. Statistically, the PFPTs coming from rural-area homes exerted significantly higher level of study engagement than those from urban-area homes. No significance was found on study engagement between Han majority and ethnic minority PFPTs, between PFPTs with different family incomes, between senior and junior PFPTs, or between PFPTs with different National College Entrance Examination (NCEE) scores.

4.8 Career-Choice Motivation and Study Engagement: Comparison between PFPTs and SSPTs

The sixth quantitative research question was "How do the policy-funded pre-service teachers (the PFPTs) compare with the self-sponsored pre-service teachers (the SSPTs) in terms of career-choice motivation and study engagement?" To answer this research question, the parametric techniques of independent-samples t-test and two-way between-groups ANOVA were applied. The data analysed were collected from 712 Chinese pre-service teachers including 309 PFPTs and 403 SSPTs by two instruments: the reduced Chinese version of the Career-Choice Motivation scale (the CCM scale, see Part B of Appendix 7) and the reduced

Chinese version of the Student Version of Utrecht Work Engagement Scale (the UWES-S-17 scale, see Appendix 10).

4.8.1 Impacts of the Funding Policy on Career-Choice Motivation of Chinese Pre-service Teachers

Results of independent-samples t-test on career-choice motivation between the policy-funded pre-service teachers (PFPTs) and the self-sponsored pre-service teachers (SSPTs) was demonstrated in Table 37. It shows that the PFPTs placed a significantly higher emphasis on *Personal Interest* (*Intrinsic Motivation*) as their motivation to choose teaching profession than the SSPTs (4.787 vs. 4.553, $t = 2.542$, $p < .05$). However, there was no statistical significance in the other five types of career-choice motivation between the two groups.

Table 37: Independent-Samples T-Test on Motivation to Teach between PFPTs and SSPTs

Career-Choice Motivation	Funding Source	N	M	SD	t	df	p
Teacher Influence	PFPTs	309	5.229	1.260	.309	710	.757
	SSPTs	403	5.199	1.301			
Job Advantages(EM)	PFPTs	309	4.890	.921	-.390	710	.697
	SSPTs	403	4.919	.986			
Social Value(AM)	PFPTs	309	4.829	1.067	.089	710	.929
	SSPTs	403	4.822	1.026			
Personal Interest(IM)	PFPTs	309	4.787	1.177	2.542*	710	.011
	SSPTs	403	4.553	1.248			
Others' Suggestion	PFPTs	309	4.132	1.145	-.937	710	.349
	SSPTs	403	4.215	1.174			
Fallback Career	PFPTs	309	3.601	1.316	-1.320	710	.187
	SSPTs	403	3.731	1.277			

The significant difference in rankings of *Personal Interest* (*Intrinsic Motivation*) between the PFPTs and the SSPTs could be interpreted as the impacts of the Government-Funded Teacher Education Policy on Chinese pre-service teachers' career choice motivation. However, as previous results of current study showed that six demographic variables, namely gender, ethnicity, home region, family income, year of study, and exam score, could impact career-choice motivation of the policy-funded pre-service teachers (see section 4.6 of this chapter), the possibility of interaction effects on *Personal Interest* (*Intrinsic Motivation*) between these

demographic factors and the Government-Funded Teacher Education Policy ("funding source") should be examined before interpreting the main effect of the funding policy on career-choice motivation. For this reason, the two-way between-groups ANOVAs were conducted on *Personal Interest* (*Intrinsic Motivation*) of Chinese pre-service teachers between "funding source" and each of the six demographic variables.

4.8.2 Examining Interaction Effect on Intrinsic Motivation between the Funding Policy and the Demographic Variables

Six two-way between-groups ANOVAs were conducted. For each ANOVA, *Personal Interest* (*Intrinsic Motivation*) was the dependent variable, and "funding source" and one of the six demographic variables were the independent variables. Results of the descriptive statistics, such as Mean values, SD, and number of each subgroup, are shown in Table 38. According to the group profiles (see Table 38) , except for the minority self-sponsored pre-service teachers (N= 37) and the High Score Group (N = 50 for PFPTs and N=13 for SSPTs), the group sizes for each demographic variables by "funding source" (N is greater than 70) could be able to provide adequate statistical power at an 80 percent probability to identify medium effects or even small effects (Läuter, 1978).

Table 38: Descriptive Statistics of Personal Interest (Intrinsic Motivation) for Groups of Demographic Variables by Funding Source

Demographic Variables	Subgroups	Funding Source	Mean	SD	N
Gender	Male	PFPTs	4.491	1.257	97
		SSPTs	4.259	1.193	132
	Female	PFPTs	4.923	1.117	212
		SSPTs	4.697	1.252	271
Year of Study	First year	PFPTs	4.878	1.178	163
		SSPTs	4.524	1.276	223
	Last year	PFPTs	4.686	1.174	146
		SSPTs	4.590	1.217	180
Ethnicity	Han	PFPTs	4.817	1.213	236
		SSPTs	4.520	1.248	366
	Minority	PFPTs	4.692	1.057	73
		SSPTs	4.883	1.217	37
Home Region	Rural Area	PFPTs	4.804	1.182	189
		SSPTs	4.597	1.233	302
	Urban Area	PFPTs	4.761	1.175	120
		SSPTs	4.422	1.292	101
Family Income	Low Income Group	PFPTs	4.733	1.129	101
		SSPTs	4.631	1.233	227
	Medium Income Group	PFPTs	4.811	1.202	104
		SSPTs	4.432	1.236	106
	High Income Group	PFPTs	4.817	1.209	104
		SSPTs	4.483	1.315	70
College Entrance Score	Low Score Group	PFPTs	4.753	1.162	128
		SSPTs	4.562	1.282	241
	Medium Score Group	PFPTs	4.795	1.238	131
		SSPTs	4.506	1.197	149
	High Score Group	PFPTs	4.857	1.068	50
		SSPTs	4.936	1.224	13

The univariate tests (Levene's tests) for homoscedasticity of the six designs (see Appendix 33) showed that the significance levels ranged from .238 to .648, all of which were larger than .05. Therefore, the variances assumption of homogeneity was met (Pallant, 2013, p. 279) for the variable of *Personal Interest* (*Intrinsic Motivation*) in the six designs.

The results of two-way between-groups ANOVAs on *Personal Interest* (*Intrinsic Motivation*) between "funding source" and each of the four demographic variables – ethnicity, home region, family income, and College Entrance Score – were presented in Table 39. These results show no significant interaction effect on *Personal Interest* (*Intrinsic Motivation*) between "funding source" and these demographic variables. Thus, the significant main effect of "funding source" on *Personal Interest* (*Intrinsic Motivation*) was approved to be independent form the main effects of them.

Table 39: Tests of Between-Subjects Effects for Group Differences in Personal Interest (Intrinsic Motivation) across Groups of Funding Source by Ethnicity, Home Region, Family Income, and Exam Score Respectively

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial η2
Corrected Model	14.887a	3	4.962	3.351	.019	.014
Intercept	7498.782	1	7498.782	5064.020	.000	.877
Ethnicity	1.183	1	1.183	.799	.372	.001
Funding Source	.235	1	.235	.159	.690	.000
Ethnicity * Funding Source	4.996	1	4.996	3.374	.067	.005
Error	1048.404	708	1.481			
Total	16491.389	712				
Corrected Total	1063.291	711				
a. R Squared = .014 (Adjusted R Squared = .010)						
Corrected Model	12.034a	3	4.011	2.702	.045	.011
Intercept	12870.456	1	12870.456	8667.985	.000	.924
Home Region	1.768	1	1.768	1.191	.276	.002
Funding Source	11.099	1	11.099	7.475	.006	.010
Home Region * Funding Source	.645	1	.645	.434	.510	.001
Error	1051.257	708	1.485			
Total	16491.389	712				
Corrected Total	1063.291	711				
a. R Squared = .011 (Adjusted R Squared = .007)						
Corrected Model	13.319a	5	2.664	1.791	.112	.013
Intercept	13602.908	1	13602.908	9146.574	.000	.928
Family Income Level	.442	2	.221	.149	.862	.000
Funding Source	11.565	1	11.565	7.776	.005	.011
Family Income Level * Funding Source	2.708	2	1.354	.911	.403	.003
Error	1049.973	706	1.487			
Total	16491.389	712				
Corrected Total	1063.291	711				
a. R Squared = .013 (Adjusted R Squared = .006)						
Corrected Model	12.252a	5	2.450	1.646	.146	.012
Intercept	6548.927	1	6548.927	4399.019	.000	.862
Above Bar Score Level	2.273	2	1.137	.763	.466	.002
Funding Source	1.303	1	1.303	.875	.350	.001
Above Bar Score Level * Funding Source	1.332	2	.666	.447	.640	.001
Error	1051.039	706	1.489			
Total	16491.389	712				
Corrected Total	1063.291	711				
a. R Squared = .012 (Adjusted R Squared = .005)						

4.8.2.1 Between "Funding Source" and "Gender"

Results of the between-subjects effects (see Table 40) indicated that there was statistically significant main effect on *Personal Interest* (*Intrinsic Motivation*) for either "gender" (F (1,708) = 19.876, p = .000) or "funding source" (F (1,708) = 5.532, p = .019); however, their effect sizes (partial eta squared was .027 for "gender" and .008 for "funding source") were both small according to the guideline suggested by Cohen (1988, p. 22) and Pallant (2013, p. 218). Table 40 also shows that there was no statistically significant interaction effect on *Personal Interest* (*Intrinsic Motivation*) between "gender" and "funding source" (F (1,708) = .001, p = .974). The nonsignificant interaction effect denoted the independence of treatments of "gender" and "funding source"; therefore, the significant main effect for each of them on *Personal Interest* (*Intrinsic Motivation*) was able to be directly interpreted.

Table 40: Tests of Between-Subjects Effects for Group Differences in Personal Interest (Intrinsic Motivation) across Groups of Funding Source by Gender

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial η2
Corrected Model	39.008[a]	3	13.003	8.988	.000	.037
Intercept	12834.946	1	12834.946	8871.705	0.000	.926
Gender	28.756	1	28.756	19.876	.000	.027
Funding Source	8.003	1	8.003	5.532	.019	.008
Gender * Funding Source	.002	1	.002	.001	.974	.000
Error	1024.284	708	1.447			
Total	16491.389	712				
Corrected Total	1063.291	711				

Note: [a]. R Squared = .037 (Adjusted R Squared = .033)

Figure 9 depicted scores of *Personal Interest* (*Intrinsic Motivation*) for male and female pre-service teachers in different categories of "funding source". The almost parallel lines in the plot confirmed results of the statistical test that no interaction effects existed between "gender" and "funding source" and the main effect of each treatment was constant at each level. The male PFPTs emphasised *Personal Interest* (*Intrinsic Motivation*) as their motivation to choose teaching more than male SSPTs (4.49 vs. 4.26). For the female PFPTs, they also emphasised *Personal Interest* (*Intrinsic Motivation*) more than the female SSPTs (4.92 vs.

4.70). Therefore, the impact of "funding source" on Chinese pre-service teachers' intrinsic career-choice motivation was independent from the influence of "gender".

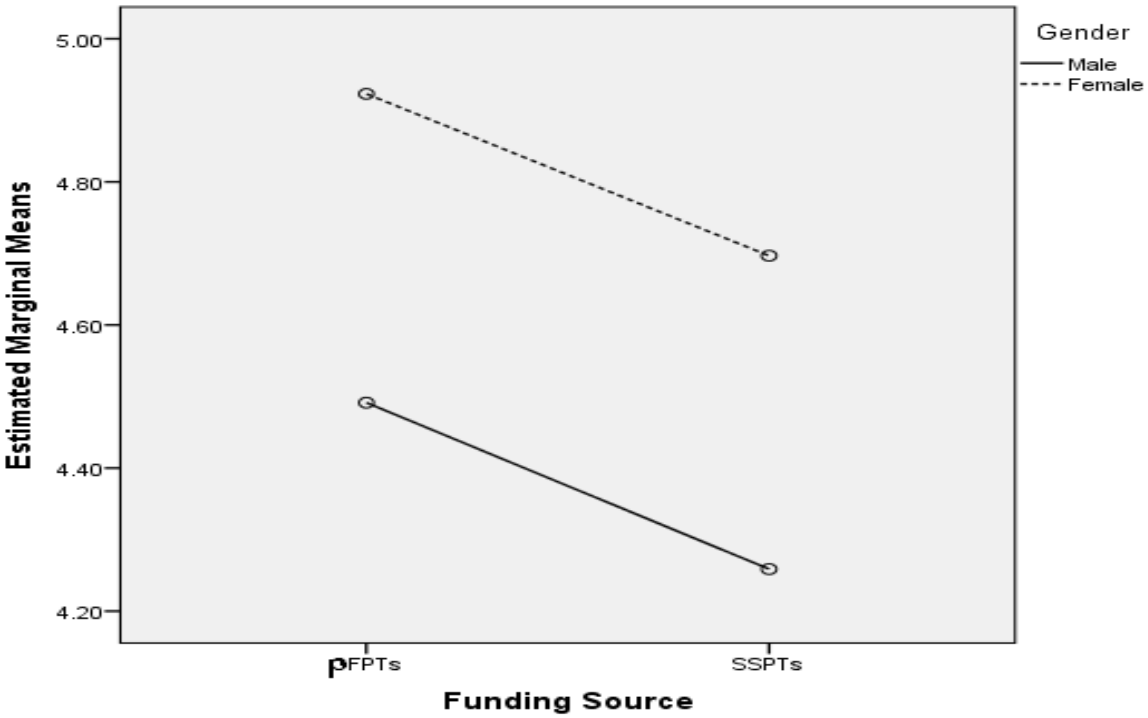

Figure 9: Graphical Display of Interaction Effects of Personal Interest (Intrinsic Motivation) across Groups of Funding Source by Gender

4.8.2.2 Between "Funding Source" and "Year of Study"

Results in Table 41 show that there was no significant main effect for "year of study" on *Personal Interest* (*Intrinsic Motivation*) (F (1,708) = .467, p = .494). The main effect for "funding source" on *Personal Interest* (*Intrinsic Motivation*) was statistically significant (F (1,708) = 5.964, p = .015); however, the effect size was small (partial eta squared = .008). Moreover, no significant interaction effect between "year of study" and "funding source" on *Personal Interest* (*Intrinsic Motivation*) for the participants (F (1,708) = 1.951, p = .163). Because of the nonsignificant interaction effect, the significant main effect for "funding source" was able to be directly interpreted.

Table 41: Tests of Between-Subjects Effects for Group Differences in Personal Interest (Intrinsic Motivation) across Groups of Funding Source by Year of Study

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial η2
Corrected Model	12.867[a]	3	4.289	2.891	.035	.012
Intercept	15152.460	1	15152.460	10212.959	0.000	.935
Year of Study	.693	1	.693	.467	.494	.001
Funding Source	8.821	1	8.821	5.946	.015	.008
Year of Study * Funding Source	2.894	1	2.894	1.951	.163	.003
Error	1050.424	708	1.484			
Total	16491.389	712				
Corrected Total	1063.291	711				

Note: [a]. R Squared = .012 (Adjusted R Squared = .008)

For the purpose of understanding whether the impacts of "funding source" varied in different "year of study" groups, Figure 10 was examined. A visual inspection of the plot found that, although the PFPTs' ranking on *Personal Interest* (*Intrinsic Motivation*) was higher than that of the SSPTs in either the first year group or the last year group, the trend for *Personal Interest* (*Intrinsic Motivation*) from first year to last year of university studies was different between the PFPTs and the SSPTs. For the PFPT group, the ranking of *Personal Interest* (*Intrinsic Motivation*) for the first-year PFPTs was 4.88, which dropped to 4.69 for the last-year PFPTs; however, this decrease was not statistically significant ($t = 1.435$, $p > .05$). For the SSPT group, the ranking of *Personal Interest* (*Intrinsic Motivation*) raised from 4.52 for the first-year SSPTs to 4.59 for the last-year SSPTs; however, this increase was not statistically significant either ($t = -.526$, $p > .05$).

Further independent-samples t-tests (two tailed) showed that the first-year PFPTs had a significantly higher ranking on *Personal Interest* (*Intrinsic Motivation*) than the first-year SSPTs (4.88 vs. 4.52, $t = 2.784$, $p < .01$); however, there was no significant difference on *Personal Interest* (*Intrinsic Motivation*) between the last-year PFPTs and the last-year SSPTs (4.69 vs. 4.59, $t = .722$, $p > .05$).

These results demonstrated that, compared with the SSPTs, the first-year PFPTs had a significantly higher intrinsic career-choice motivation, which suggested that the funding policy attracted high-school graduates (the firs-year PFPTs) with higher *Personal Interest*

(*Intrinsic Motivation*) to become a teacher. Meanwhile, opposite to their self-sponsored counterparts, the PFPTs seemed to experience a declining trend of intrinsic career-choice motivation during the four-year teacher training.

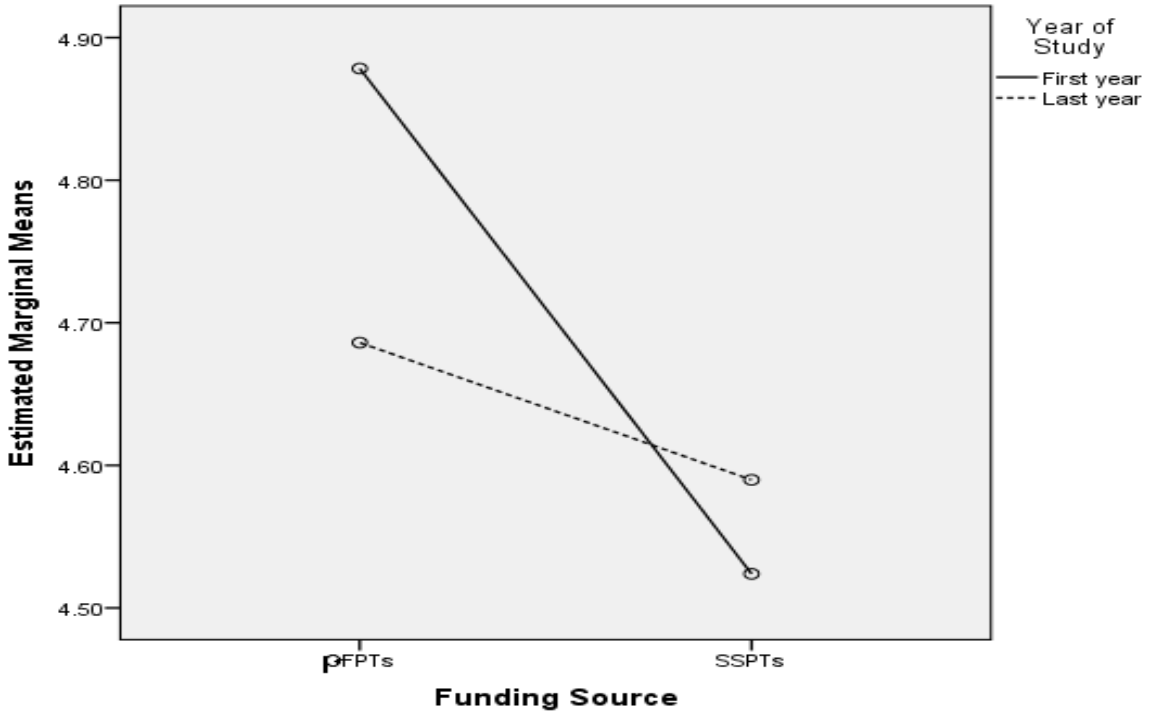

Figure 10: Graphical Display of Interaction Effects of Personal Interest (Intrinsic Motivation) across Groups of Funding Source by Year of Study

4.8.2.3 Between "University" and "Gender", and "University" and "Year of Study"

For the fact that the self-sponsored pre-service teachers (SSPTs) were from two non-policy universities (non-policy university A and non-policy university B) and the policy-funded pre-service teachers (PFPTs) came from only one policy university, other univariate ANOVAs were conducted to explore possible interaction effects on *Personal Interest* (*Intrinsic Motivation*) between "university" and "gender", and between "university" and "year of study". Statistical results showed that none of the interaction effects were significant ($p > .05$). The statistical results should be taken into consideration cautiously due to the small sample size of some groups and the unbalanced distribution of the sample size among different groups. For example, there were 74 last-year SSPTs in non-policy university A, but 146 last-year PFPTs in the policy university; there were 64 male SSPTs in non-policy university B,

but 212 female PFPTs in the policy university. However, the following graphical descriptions provided more information.

The almost parallel lines in Figure 11 indicated that the trend for *Personal Interest* (*Intrinsic Motivation*) across the three universities by "gender" was generally the same: it was always higher for female pre-service teachers than their male counterparts. However, the mean values in Figure 11 showed that both male and female PFPTs from the policy university had higher rankings on *Personal Interest* (*Intrinsic Motivation*) than their counterparts from either non-policy university A or non-policy university B.

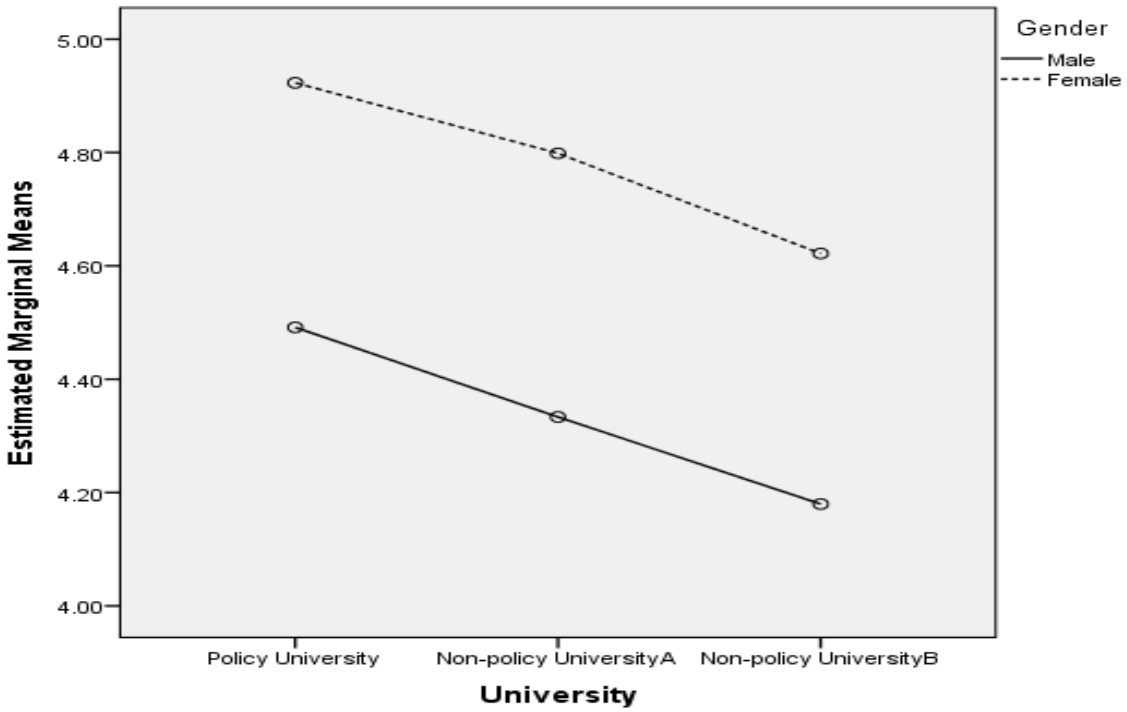

Figure 11: Graphical Display of Interaction Effects of Personal Interest (Intrinsic Motivation) across Groups of University by Gender

A visual inspection of Figure 12 found that the trend for *Personal Interest* (*Intrinsic Motivation*) between the two non-policy universities by "year of study" was almost the same (it was described by the parallel lines): for both non-policy universities, the last-year SSPTs had a higher level of *Personal Interest* (*Intrinsic Motivation*) than the first-year SSPTs. However, for the policy university, the last-year PFPTs had a lower level of *Personal Interest* (*Intrinsic Motivation*) than the first-year PFPTs. Furthermore, the mean values in Figure 12 suggested that both the first-year and the last-year PFPTs from the policy university had a higher level of *Personal Interest* (*Intrinsic Motivation*) than their counterparts from either non-policy university A or non-policy university B.

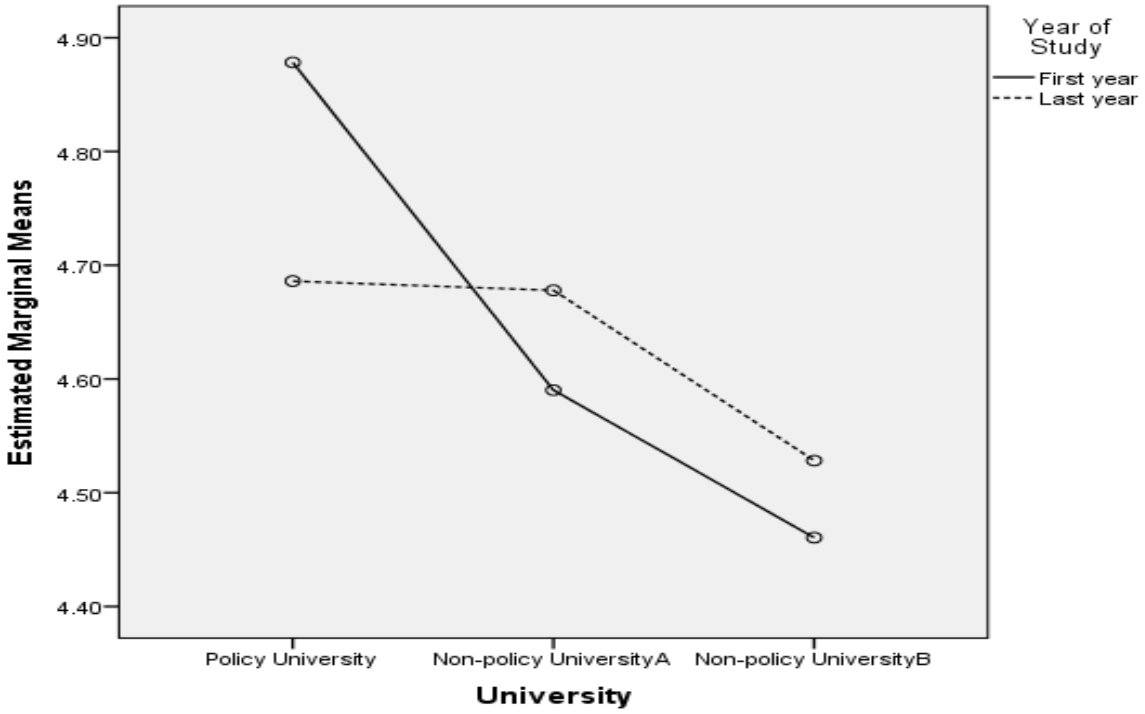

Figure 12: Graphical Display of Interaction Effects of Personal Interest (Intrinsic Motivation) across Groups of University by Year of Study

All these results were generally consistent with previous results when the self-sponsored pre-service teachers (SSPTs) from the two non-policy universities were combined (see section 4.8.2.1 and section 4.8.2.2 of this chapter). These results, together with previous results, indicated that the policy-funded pre-service teachers (PFPTs) from the university which was implementing the Government-Funded Teacher Education Policy (the policy university) generally had a significantly higher *Personal Interest* (*Intrinsic Motivation*) for choosing teaching as a career than the SSPTs from the two universities which were not implementing the funding policy (the non-policy university). Meanwhile, during the four-year teacher training, the PFPTs seemed to have a decreasing intrinsic career-choice motivation while their self-sponsored counterparts from both non-policy universities appeared to enhance their personal interest in teaching profession.

4.8.3 Summary: Funding Policy's Impacts on Chinese Pre-service Teachers' Career-Choice Motivation

Among the six types of career-choice motivation, the policy-funded pre-service teachers (PFPTs) rated *Personal Interest* (*Intrinsic Motivation*) as a motivational factor significantly higher than the self-sponsored pre-service teachers (SSPTs); however, the two groups of pre-

service teachers had no significant difference in other five types of career-choice motivation. This result suggests that the funding policy (the Government-Funded Teacher Education Policy) may have a main effect on pre-service teachers' *Personal Interest* (*Intrinsic Motivation*). This main effect was further proved to be significant and relatively independent of six demographic variables. Therefore, it was supported that, overall, the funding policy increases pre-service teachers' intrinsic career-choice motivation. However, further analyses found that, during the four-year teacher training, those funded by the policy seem to have a decline in their intrinsic career-choice motivation. On the contrary, their self-sponsored counterparts tend to experience an increase in their intrinsic motivation to choose teaching profession.

4.8.4 Impacts of the Funding Policy on Study Engagement of Chinese Pre-service Teachers

To compare ratings between the PFPTs and the SSPTs on the two dimensions of study engagement (*Persistence* and *Enthusiasm*) and *Total Engagement*, another independent-samples t-test was conducted. The results (see Table 42) show that there was no statistically significant difference between the two groups at the .05 level. These results indicate that the funding policy may have no impacts on Chinese pre-service teachers' study engagement in teacher-training programmes.

Table 42: Independent-Samples T-Test for Study Engagement between the PFPTs and the SSPTs

Study Engagement	Funding Source	N	M	SD	t	df	p
Persistence	PFPTs	309	4.161	.950	-1.746	710	.081
	SSPTs	403	4.292	1.024			
Enthusiasm	PFPTs	309	4.638	.955	-1.335	710	.182
	SSPTs	403	4.736	.981			
Total Engagement	PFPTs	309	4.400	.880	-1.669	710	.096
	SSPTs	403	4.514	.927			

4.8.5 Examining Interaction Effect on Study Engagement between the Funding Policy and the Demographic Variables

To explore whether the funding policy and the demographic information of pre-service teachers have significant interaction effects on their study engagement, two-way between-

groups ANOVAs were conducted. “Funding source” together with each demographic variable was selected as the independent variable, and “total engagement”, which represented *Study Engagement*, was selected as the dependent variable for the two-way between-groups ANOVAs.

The results of two-way between-groups ANOVAs on “total engagement” between “funding source” and each of the five demographic variables – gender, ethnicity, home region, family income, and exam scores – were presented in Table 43. These results showed that none of the five demographics together with “funding source” had a significant interaction effect on Chinese pre-service teachers’ *study engagement*.

Table 43: Tests of Between-Subjects Effects for Group Differences in Total Engagement (Study Engagement) across Groups of Funding Source by Gender, Ethnicity, Home Region, Family Income, and Exam Score Respectively

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial η2
Corrected Model	3.167a	3	1.056	1.280	.280	.005
Intercept	12150.782	1	12150.782	14733.275	.000	.954
Funding Source	1.354	1	1.354	1.642	.200	.002
Gender	.553	1	.553	.671	.413	.001
Funding Source * Gender	.443	1	.443	.538	.464	.001
Error	583.900	708	.825			
Total	14780.413	712				
Corrected Total	587.066	711				
a. R Squared = .005 (Adjusted R Squared = .001)						
Corrected Model	2.466a	3	.822	.995	.394	.004
Intercept	6708.423	1	6708.423	8124.459	.000	.920
Funding Source	1.732	1	1.732	2.097	.148	.003
Ethnicity	.107	1	.107	.130	.718	.000
Funding Source * Ethnicity	.107	1	.107	.130	.719	.000
Error	584.601	708	.826			
Total	14780.413	712				
Corrected Total	587.066	711				
a. R Squared = .004 (Adjusted R Squared = .000)						
Corrected Model	8.868a	3	2.956	3.619	.013	.015
Intercept	11677.996	1	11677.996	14299.622	.000	.953
Funding Source	1.843	1	1.843	2.257	.133	.003
Home Region	5.963	1	5.963	7.301	.007	.010
Funding Source * Home Region	.671	1	.671	.822	.365	.001
Error	578.199	708	.817			
Total	14780.413	712				
Corrected Total	587.066	711				
a. R Squared = .015 (Adjusted R Squared = .011)						
Corrected Model	8.049a	5	1.610	1.963	.082	.014
Intercept	12382.178	1	12382.178	15097.680	.000	.955
Funding Source	.854	1	.854	1.041	.308	.001
Family Income	5.117	2	2.558	3.119	.045	.009
Funding Source * Family Income	.226	2	.113	.138	.871	.000
Error	579.017	706	.820			
Total	14780.413	712				
Corrected Total	587.066	711				
a. R Squared = .014 (Adjusted R Squared = .007)						
Corrected Model	9.573a	5	1.915	2.341	.040	.016
Intercept	5842.746	1	5842.746	7142.902	.000	.910
Funding Source	.855	1	.855	1.045	.307	.001
Above Bar Score	6.695	2	3.347	4.092	.017	.011
Funding Source * Above Bar Score	.052	2	.026	.031	.969	.000
Error	577.493	706	.818			
Total	14780.413	712				
Corrected Total	587.066	711				
a. R Squared = .016 (Adjusted R Squared = .009)						

4.8.5.1 Between "Funding Source" and "Year of Study"

The descriptive results (see Table 44) indicated that the group sizes were greater than 146, which meant the two-way between-groups ANOVA was able to detect small effects at an 80 percent probability. In the Levene's test for equality of error variances (see Appendix 34), the dependent variable of "total engagement" showed non-significant results and confirmed homoscedasticity of the design.

Table 44: Descriptive Statistics of Total Engagement for Groups of Year of Study by Funding Source

Year of Study	Funding Source	Mean	Std. Deviation	N
First year	PFPTs	4.418	.874	163
	SSPTs	4.395	.935	223
	Total	4.405	.909	386
Last year	PFPTs	4.380	.891	146
	SSPTs	4.662	.899	180
	Total	4.536	.905	326
Total	PFPTs	4.400	.881	309
	SSPTs	4.515	.928	403
	Total	4.465	.909	712

The statistical results of between-subjects effects (see Table 45) indicated that the main effect on "total engagement" for each of the two independent variables ("year of study" and "funding source") was not statistically significant ($p > .05$); however, the interaction effect on "total engagement" between "year of study" and "funding source" was statistically significant ($F (1, 708) = 4.935$, $p < .05$).

Table 45: Tests of Between-Subjects Effects for Group Differences in Total Engagement across Groups of Funding Source by Year of Study

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial η^2
Corrected Model	9.501[a]	3	3.167	3.882	.009	.016
Intercept	13847.003	1	13847.003	16974.153	0.000	.960
Year of Study	2.288	1	2.288	2.804	.094	.004
Funding Source	2.927	1	2.927	3.588	.059	.005
Year of Study * Funding Source	4.026	1	4.026	4.935	.027	.007
Error	577.565	708	.816			
Total	14780.413	712				
Corrected Total	587.066	711				

Note: [a] R Squared = .016 (Adjusted R Squared = .012)

The significant interaction effect was described in Figure 13 by nonparallel lines. A visual examination of the plot, in conjunction with analysing mean values in Table 44, found that the changing trend of total study engagement was opposite for the PFPTs and the SSPTs from their first-year to their last-year university studies. For the PFPTs, their ranking on "total engagement" was slightly dropped from 4.418 for the first-year PFPTs to 4.380 for the last-year PFPTs ($t = .373$, $p > .05$). For the SSPTs, however, their ranking on "total engagement" was significantly increased from 4.395 for the first-year SSPTs to 4.662 for the last-year SSPTs ($t = -2.899$, $p < .01$). Further independent-samples t-tests (two tailed) found that the difference of ranking on "total engagement" for the first-year PFPTs and the first-year SSPTs was not statistically significant (4.418 vs. 4.395, $t = .239$, $p > .05$); however, the last-year PFPTs had a statistically significantly lower ranking on their "total engagement" than the last-year SSPTs (4.380 vs. 4.662, $t = -2.828$, $p < .01$). These results suggested that, compared with the SSPTs, the PFPTs failed to increase their study engagement.

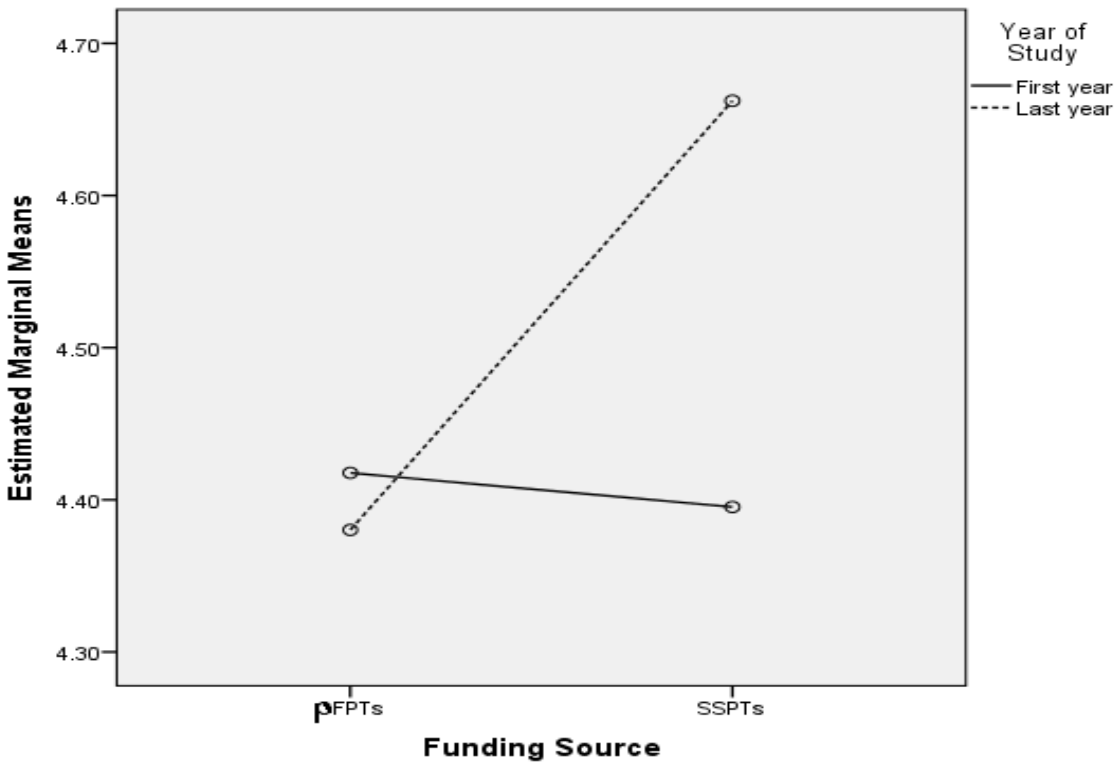

Figure 13: Graphical Display of Interaction Effects of Total Engagement across Groups of Funding Source by Year of Study

4.8.5.2 Between "University" and "Year of Study"

Since the SSPTs were sampled from two non-policy universities (non-policy university A and non-policy university B) and the PFPTs were sampled from one university, it was necessary to test whether the trend for "total engagement" of the PFPTs and the SSPTs in different year of study was the same across the three universities. Therefore, another two-way between-group ANOVA was conducted on "total engagement" with "university" and "year of study" as independent variables. The statistical results showed that the interaction effect on "total engagement" between "university" and "year of study" was significant ($F(2,706) = 4.658$, $p < .05$, $\eta^2 = .013$). These statistical results should be considered cautiously because the small sample size of some groups and the unequal distribution of sample sizes in different groups may decrease the statistical power.

A visual examination of Figure 14 found that the general trend for "total engagement" was similar to previous results (see Figure 13). For both non-policy universities, the "total engagement" for the last-year SSPTs was higher than the first-year SSPTs although the changing degree for each university was different. For the policy university, however, the "total engagement" for the last-year PFPTs was slightly lower than the first-year PFPTs.

Moreover, the mean values of "total engagement" for the first-year PFPTs was slightly higher than that of the SSPTs from either of the two non-policy universities, but the last-year PFPTs had a lower mean value of "total engagement" than the SSPTs from the two non-policy universities, especially non-policy university B.

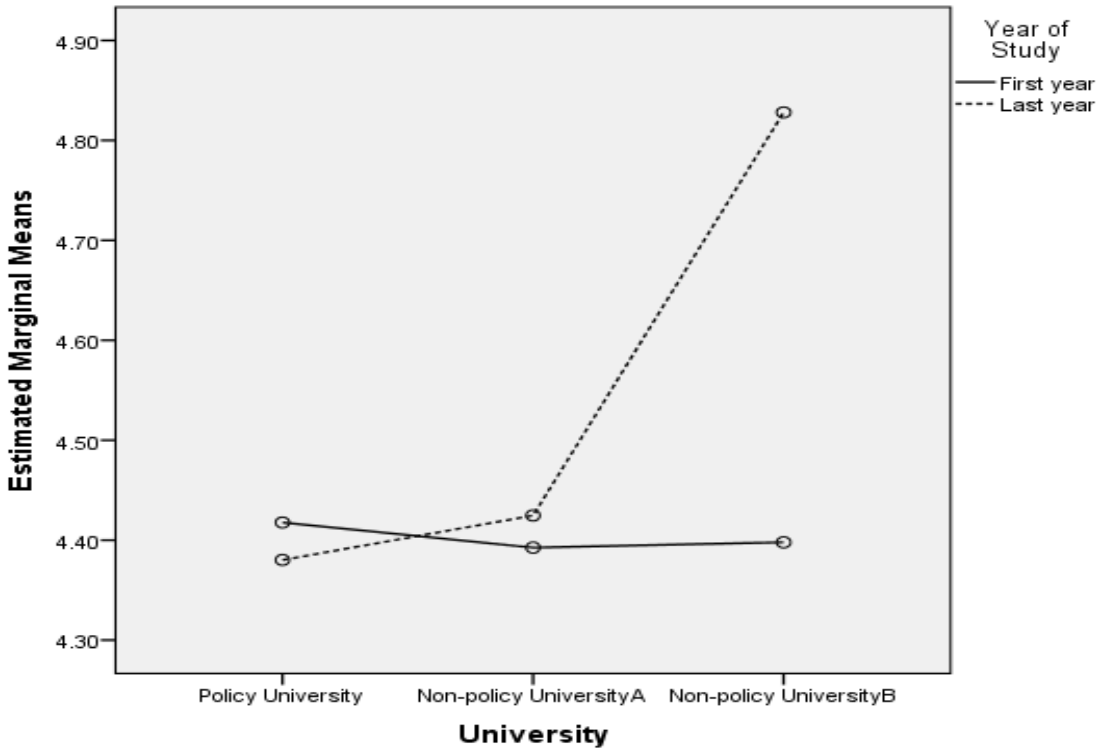

Figure 14: Graphical Display of Interaction Effects of Total Engagement across Groups of University by Year of Study

None of these results were against previous findings when the SSPTs from the two non-policy universities were combined (see section 4.8.5.1 of this chapter). Therefore, although there was no significant difference on total study engagement between the PFPTs and the SSPTs, the funding policy (the GFTEP) could fail to increase the PFPTs' study engagement during the four-year teacher training.

4.8.6 Summary: Funding Policy's Impacts on Chinese Pre-service Teachers' Study Engagement

No statistically significant difference was found in study engagement in teacher training programmes between the policy-funded pre-service teachers and the self-sponsored pre-service teachers. However, further analyses indicated that the Government-Funded Teacher Education Policy implemented by the policy university could fail to enhance the policy-funded pre-service teachers' study engagement in the teacher training programmes.

4.9 Satisfaction Levels of PFPTs with the Funding Policy

The seventh quantitative research question was "what is the policy-funded pre-service teachers' (the PFPTs) satisfaction level with different terms of the Government-Funded Teacher Education Policy (the GFTEP)?" To answer this question, data collected from 309 PFPTs by the Chinese version of the Government-Funded Teacher Education Policy Satisfaction Scale (the GFTEP-S Scale, see Appendix 11) were analysed. The 14 policy terms on the GFTEP-S Scale were summarised from Chinese official documents (see Appendix 5). The PFPTs were asked to rate their degree of satisfaction with each policy term on the GFTEP-S Scale on a one to seven Likert scale.

4.9.1 Level of Satisfaction with Each Policy Term

The following table shows the results of 309 policy-funded pre-service teachers' satisfaction levels with the 14 policy terms on the GFTEP-S Scale. The first four policy terms that the PFPTs were highly satisfied with (M>5.5) were F1, F7, F9, and F11. The last three policy terms with low satisfaction levels (M<4.5) were F14, F4 and F12. The PFPTs' overall level of satisfaction with the policy terms was 5.09 (SD=.870).

Table 46: The PFPTs' Satisfaction Level with the Policy Terms (N=309)

Policy Terms	Satisfaction Level (Mean)	SD	Order of Satisfaction Level
F1	5.92	1.226	1
F7	5.59	1.152	2
F9	5.59	1.130	3
F11	5.57	1.297	4
F13	5.46	1.132	5
F5	5.44	1.165	6
F3	5.35	1.315	7
F10	5.25	1.316	8
F2	5.07	1.497	9
F8	4.90	1.422	10
F6	4.52	1.440	11
F12	4.48	1.496	12
F4	4.24	1.554	13
F14	3.92	1.727	14

Note: The overall value of satisfaction level with the policy was 5.09 (SD=.870). The meaning of each policy term can be found in Appendix 11.

4.9.2 Level of Satisfaction with Different Types of Policy Terms

To explore the underlying structure of these policy terms according to PFPTs' satisfaction levels with them, and to test the validity and reliability of the self-developed GFTEP-S Scale, principal component analysis was conducted after ensuring the appropriateness for factor analysis on the scale.

The appropriateness for conducing factor analysis on the GFTEP-S Scale was guaranteed in the following measures. The correlation matrix (see Appendix 35) showed that the majority of the correlations were significant at the .01 level. The Bartlett's Test of Sphericity χ^2 (91) =2074.636 suggested the overall correlations were significant at the .001 level. Furthermore, Appendix 36 showed that the values of Measure of Sampling Adequacy for the GFTEP-S Scale (ranging from .867 to .937 for each of the 14 variables) were greater than the acceptable criteria of over .50 (.901 for the whole scale as shown in Appendix 35), and there was no value of anti-image correlation bigger than .50. Therefore, the principal component analysis was conducted on the full set of the 14 variables on the GFTEP-S Scale.

The number of factors to extract was forced into two in the principal component analysis with Varimax rotation on the full set of variables to test if the policy terms could be divided into two groups. The results (see Appendix 37) showed that two factors (F2 and F3) had the values of communality under .40. Moreover, F2 had the lowest factor loading (.438) and lowest communality value (.230). Therefore, the variable of F2 was eliminated before the next factor analysis. The second principal component analysis on the reduced 13 variables still suggested that F3 had a low communality value (.381). Examining the meaning of the two variables (see Appendix 11) found that the policy terms of F2 and F3 both directly related to the responsibility of policy universities, which may not be the main concerns of the PFPTs. For these reasons, F2 and F3 were deleted from the GFTEP-S Scale for the following study.

The principal component analysis with varimax rotation was conducted on the reduced 12 variables (policy terms) in the GFTEP-S Scale. According to the result showed in Table 47, two factors can be extracted by the latent root criterion of eigenvalues greater than one. This result was slightly different from that of the scree plot (see Figure 15), which showed that three factors might be available according to the turning point (the "elbow"). However, as the

eigenvalue of factor 2 (1.757) was two times bigger than that of factor 3 (.834), only factor 1 and factor 2 were retained which explained 60.97% of the total variance (see Table 47).

Table 47: Results of the Extraction of Component Factors for Reduced 12 Variables in GFTEP-S Scale

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.559	46.322	46.322	5.559	46.322	46.322	4.341
2	1.757	14.642	60.965	1.757	14.642	60.965	2.974
3	.834	6.950	67.915				
4	.714	5.952	73.866				
5	.549	4.577	78.444				
6	.494	4.120	82.564				
7	.453	3.772	86.337				
8	.429	3.574	89.911				
9	.373	3.106	93.018				
10	.322	2.680	95.698				
11	.277	2.305	98.002				
12	.240	1.998	100.000				

Note: Extraction Method: Principal Component Analysis.

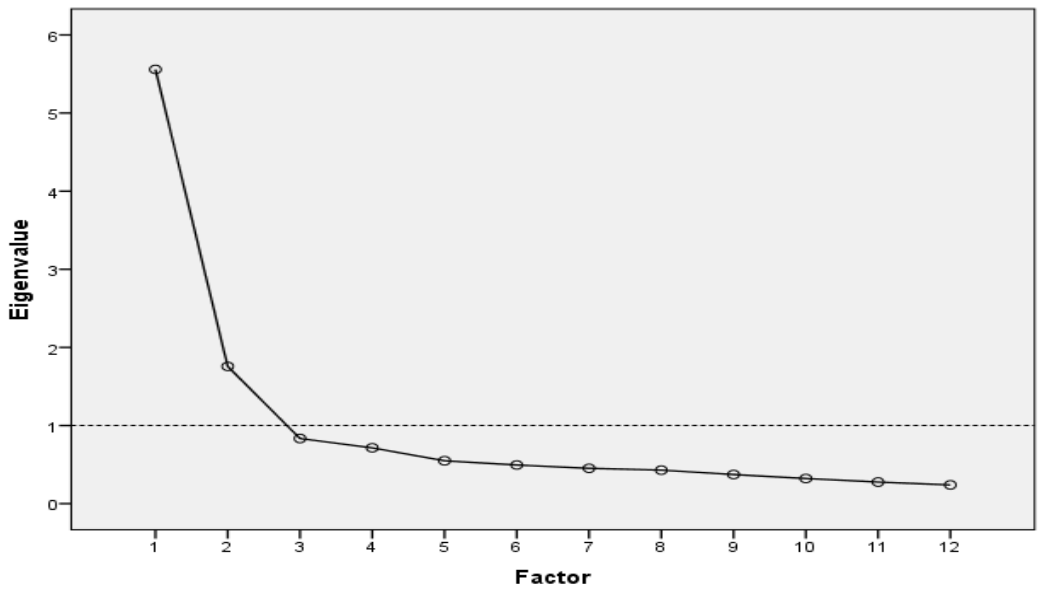

Figure 15: Scree Test for Component Analysis on Reduced 12 Variables in GFTEP-S Scale

The validity was ensured by the following measures for the GFTEP-S Scale with the reduced 12 variables. The factor-loading matrix (see Table 48) demonstrated that factor-loadings of the 12 variables were all greater than .60. At the significant level of .40, the only variable with cross loadings was F8, but it was retained in factor 2 considering its loading on factor 2 (.624) was significantly higher than that on factor 1 (.477). Ten of the 12 variables had the values of communality greater than .50 (see Table 48). Both F5 (.473) and F12 (.494) were kept because their communality values were close to .50. Overall, the reduced 12 variables had a clean factor-loading structure to ensure its acceptable construct validity. Due to the fact that all the variables (policy terms) were derived from official documents on the Government-Funded Teacher Education Policy which were reviewed by educational experts, the content validity of the GFTEP-S Scale can also be guaranteed.

Table 48: Varimax-Rotated Component Analysis Factor Matrix for Reduced Set of 12 Variables in GFTEP-S Scale

	Factor and Factor Loading [a]		
Variable	1	2	Communality
F9	.829		.729
F7	.794		.657
F13	.773		.692
F1	.772		.600
F11	.757		.596
F10	.692		.631
F5	.678		.473
F4		.814	.689
F14		.763	.588
F6		.717	.549
F12		.687	.494
F8	.477	.624	.617

Note: [a] Factor loadings below .40 have not been printed and variables have been sorted by loadings on each factor.

The reliability of the GFTEP-S Scale was also testified. As showed in the rightmost column of Table 49, the reliability test for the two summated scales showed that their Cronbach's Alpha values were .897 and .808 respectively. The Cronbach's Alpha value for all the reduced 12 variables was .883. We can see all these values were greater than .60; therefore, the GFTEP-S Scale with 12 variables had acceptable internal consistency reliability.

Table 49: Types of Policy Terms According to PFPTs' Satisfaction Levels (N=309)

Factor No. (Types)	Variables(Policy Terms)	Factor Name Assigned	Summated Scale (Mean)	SD	Cronbach's Alpha [a]
Factor 1	F9	Satisfaction with Encouraging Terms	5.55	.942	.897
	F7				
	F13				
	F1				
	F11				
	F10				
	F5				
Factor 2	F4	Satisfaction with Restrictive Terms	4.41	1.152	.808
	F14				
	F6				
	F12				
	F8				

Note: [a] The value of Cronbach's Alpha for the 12 variables was .883.

Based on the meaning of policy terms within each factor (see Table 49 and Appendix 11), the factor name assigned to factor 1 was "satisfaction with encouraging terms", while factor 2 was named as "satisfaction with restrictive terms". According to the results in Table 49, the summated scales (the mean values) for factor 1 and factor 2 were 5.55 and 4.41 respectively. A further Paired-Samples T-Test showed that the mean value of factor 1 was significantly higher than that of factor 2 ($t=18.817$, $df=308$, $p<.001$).

4.9.3 Summary

Among the 14 policy terms in the Government-Funded Teacher Education Policy, the 309 policy-funded pre-service teachers (PFPTs) were most satisfied with F1 (Tuition and accommodation fees for the PFPTs are waived, and cost of living is subsidised during their four-year undergraduate studies), F7 (Local governments involved should take actions to ensure that every graduate of PFPTs who obeys the contract can get a job to teach in a primary or secondary school), F9 (During teaching services, graduates of PFPTs can transfer among different schools or do jobs about school management), and F11 (Graduates of PFPTs who meet national enrolment requirements can enrol and become a non-academic postgraduate without attending examinations). Meanwhile, they felt most unsatisfied with

F14 (Before and after graduation, the PFPTs should not take examinations to become an academic postgraduate), F4 (Before enrolling in one of the six universities, each PFPT has to sign an agreement with the university and the Educational Executive Department of the province, promising to teach for at least 10 years), and F12 (Graduates of PFPTs should teach in a primary or secondary school located in the province where they originally came from). Moreover, according to the PFPTs' policy satisfaction levels, the policy terms could be reduced into two groups: encouraging terms and restrictive terms. The PFPTs' satisfaction level with the encouraging policy terms was significantly higher than their satisfaction level with the restrictive policy terms.

4.10 PFPTs' Perception about Teaching and Satisfaction with Choice

The eighth quantitative research question had two sub-questions: (1) what are the policy-funded pre-service teachers' (the PFPTs) perceptions about teaching; and (2) how do they feel about their decision to become a teacher? Data were collected from 712 Chinese pre-service teachers by administering the Chinese version of the Perception about Teaching Scale (the PAT Scale, see Part C in Appendix 7) and the Chinese version of the Decision to Become a Teacher Scale (the DBT Scale, see Part D in Appendix 7). These data were analysed to test the two scales' validity and reliability. After the two scales were validated, data of the 309 PFPTs were analysed to answer the two sub-questions.

4.10.1 Examining Assumptions of Factor Analyses

The appropriateness for conducting factor analysis on the full set of variables on each of the two scales was ensured by the following measures. The correlation matrix of the 14 variables on the PAT scale (see Appendix 38) reveals that all the correlations were significant at .01 or .05 level except for two correlations (C3-C10 and C6-C11). On the other correlation matrix of the six variables on the DBT scale (see Appendix 40), all the correlations were significant at the .01 level except for five correlations (D1-D4, D1-D6, D3-D4, D3-D6, and D5-D6). The Bartlett's Test of Sphericity found that the correlations were overall significant at the .01 level both for the 14 variables on the PAT Scale and for the six variables on the DBT Scale. Moreover, the factorability of the overall set of variables (and the individual variable) on the PAT Scale and the DBT Scale respectively was accessed by using the measure of sampling adequacy (MSA). For the 14 variables on the PAT Scale, the overall MSA value was .857 and the MAS values for each variable ranged from .734 to .937 (see

Appendix 39). Similarly, for the 6 variables on the DBT Scale, the overall MSA value was .651 and the MAS values for each variable varied from .568 to .777 (see Appendix 41). All the MSA values fell within the acceptable limits (over .50). Therefore, these measures all indicated that factor analysis can process in the next stage for variables on the two scales.

4.10.2 Principal Component Analyses and Results

Different number of factors was driven from the PAT scale and the DBT scale with full set of variables after the principal component analysis was conducted on them respectively. For variables on the PAT Scale, extraction of component factors (see Table 50) shows that there were four factors with eigenvalues greater than 1.0. Although the scree plot (see Figure 16) shows that five factors might be available judging by the "elbow" point, four factors were extracted because there was a gap between eigenvalues of the fourth factor (1.032) and the fifth factor (.702), and most importantly, because the interpretable four factors could explain the maximum amount of variability in the data.

Table 50: Results of Extraction of Component Factors for PAT Scale

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings (Total)
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	
1	5.229	37.348	37.348	5.229	37.348	37.348	3.500
2	2.050	14.643	51.991	2.050	14.643	51.991	2.519
3	1.297	9.265	61.256	1.297	9.265	61.256	1.907
4	1.032	7.369	68.625	1.032	7.369	68.625	1.682
5	.702	5.013	73.638				
6	.626	4.473	78.111				
7	.601	4.292	82.403				
8	.505	3.605	86.008				
9	.398	2.840	88.848				
10	.359	2.561	91.409				
11	.329	2.351	93.760				
12	.307	2.195	95.954				
13	.294	2.099	98.054				
14	.272	1.946	100.000				

Note: Extraction Method: Principal Component Analysis.

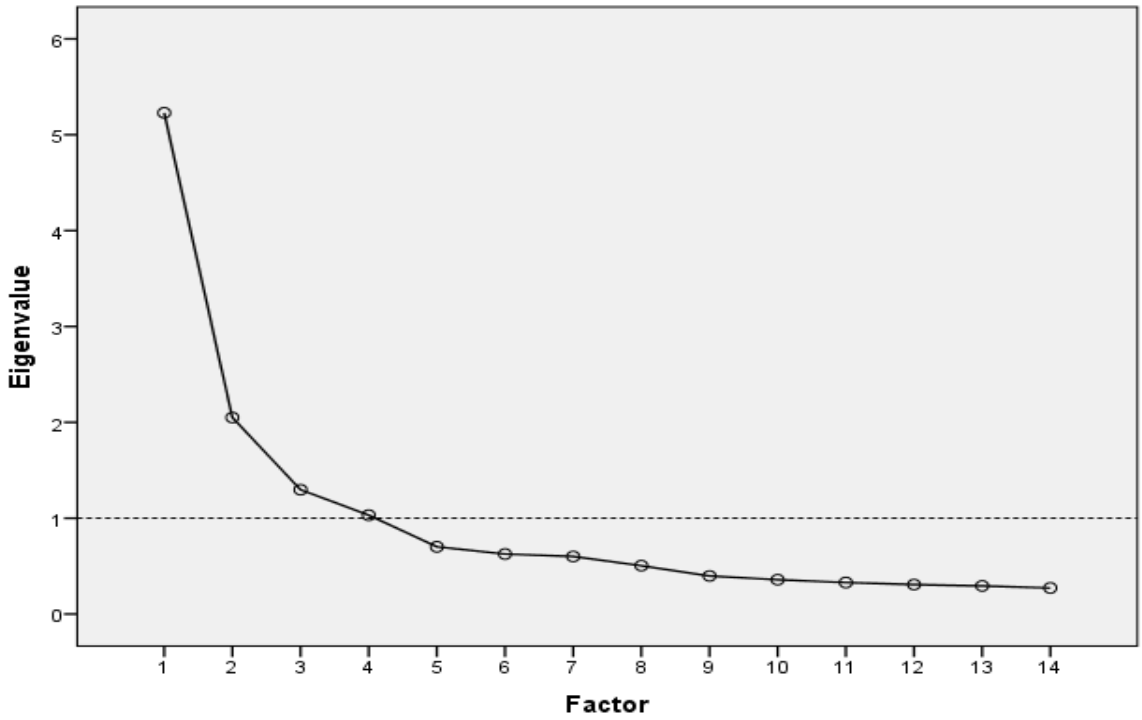

Figure 16: Scree Test for Component Analysis for PAT Scale

For variables on the DBT Scale, the results for extraction of component factors (see Table 51) showed that two factors satisfied the latent root criterion with eigenvalues over 1.0. Visual examining the scree plot (see Figure 17) found that three factors could be available. However, as the eigenvalue of factor 2 (1.851) was two times bigger than that of factor 3 (.727), two factors were selected to represent the underlying structure of variables on the DBT Scale.

Table 51: Results of Extraction of Component Factors for DBT Scale

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	(Total)
1	2.230	37.169	37.169	2.230	37.169	37.169	2.181
2	1.851	30.845	68.014	1.851	30.845	68.014	1.900
3	.727	12.111	80.125				
4	.503	8.385	88.511				
5	.389	6.490	95.001				
6	.300	4.999	100.000				

Note: Extraction Method: Principal Component Analysis.

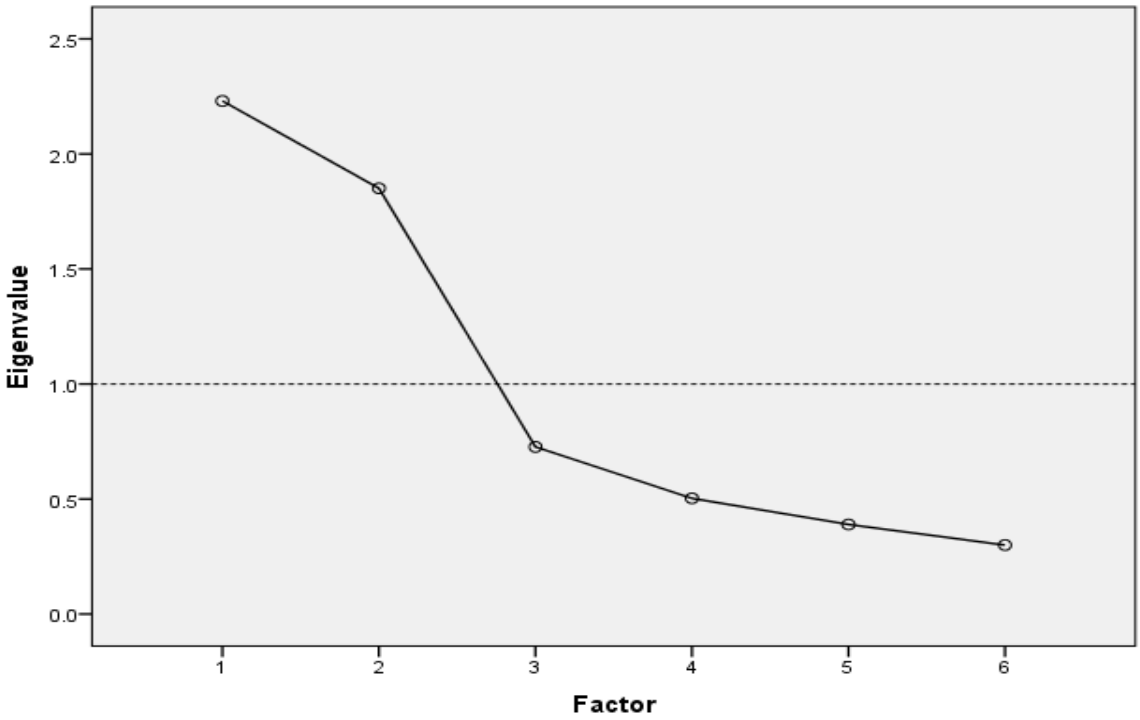

Figure 17: Scree Test for Component Analysis for DBT Scale

The validity of the two scales was measured. The factor-loading matrices for 14 variables on the PAT Scale (see Table 52) and for six variables on the DBT Scale (see Table 53) both demonstrated clean underlying structures of the two scales, thus the construct validity of them was able to be ensured. For the PAT Scale, all the communalities were greater than .50 except for C4 (.484). Moreover, all the significant factor loadings fell within the acceptable range (over .40) and had no cross-loading except for C10 with factor loadings on factor 2 (.441) and factor 3 (.638). For the DBT Scale, all the communalities were greater than .50, and all the significant factor-loadings were greater than .40 without cross loading. Lastly, as all the variables derived from the original scales which were validated by their developers, the content validity of the two scales was able to be ensured.

Table 52: Varimax-Rotated Component Analysis Factor Matrix for Variables on the PAT Scale

	Factor and Factor Loading [a]				
	1	2	3	4	communality
C7	.852				.754
C8	.796				.686
C11	.740				.672
C12	.727				.591
C5	.708				.582
C4	.482				.484
C9		.828			.730
C14		.823			.756
C13		.823			.745
C6			.818		.705
C2			.764		.664
C10		.441	.638		.605
C1				.853	.826
C3				.842	.808

Note: [a] Factor loadings below .40 have not been printed and variables have been sorted by loadings on each factor.

Table 53: Varimax-Rotated Component Analysis Factor Matrix for Variables on the DBT Scale

	Factor and Factor Loading [a]		
	1	2	Communality
D3	.887		.788
D5	.860		.743
D1	.785		.617
D6		.871	.768
D2		.755	.597
D4		.754	.569

Note: [a] Factor loadings below .40 have not been printed and variables have been sorted by loadings on each factor.

The reliability of the PAT Scale and the DBT Scale was measured and ensured. For the PAT Scale, the reliability of each of the four summated scales ranged from .763 to .861 with the overall reliability of .856 for the whole scale (see Table 54). For the DBT scale, the reliability

for the two summated scales was .840 and .740 with overall .642 for the whole scale (see Table 55). Therefore, all the indexes indicated the acceptable reliability for all these scales (greater than .60).

Table 54: Perceptions about Teaching and Their Importance Order for PFPTs (N=309)

No.	Variables	Factor Name (Perception about Teaching)	Summated Scale (Mean)	SD	Cronbach's Alpha [a]	Ranking
Factor 1	C7 C8 C11 C12 C5 C4	Social Status	4.593	1.010	.848	3
Factor 2	C9 C14 C13	Expertise	5.131	1.140	.861	1
Factor 3	C6 C2 C10	Difficulty	4.966	.962	.763	2
Factor 4	C1 C3	Salary	3.926	1.299	.784	4

Note: [a] The value of Cronbach's Alpha for the overall 14 variables was .856.

Table 55: Decision to Become a Teacher and Their Importance Order for PFPTs (N=309)

No.	Variables	Factor Name (Decision to Become a Teacher)	Summated Scale (Mean)	SD	Cronbach's Alpha [a]	Ranking
Factor 1	D3 D5 D1	Satisfaction with Choice	4.997	1.192	.840	1
Factor 2	D6 D2 D4	Social Dissuasion	4.093	1.174	.740	2

Note: [a] The value of Cronbach's Alpha for the overall 6 variables was .642.

The factor structures (see Table 54 and Table 55) happened to be the same as those in the original scales (see Part C and Part D in Appendix 7). Therefore, same as the original scales, the four factors in the PAT Scale were labelled as *Social Status*, *Expertise*, *Difficulty*, and *Salary*, which represented four perceptions of Chinese pre-service teachers on teaching profession, and the two factors in the DBT Scale were named as *Satisfaction with Choice* and *Social Dissuasion*, which represented two aspects in the process of making a decision to teach.

By calculating the average value of the variables within each factor, the summated scales for the four factors in the PAT Scale, in descending order, were *Expertise* (M=5.131, SD=1.140), *Difficulty* (M=4.966, SD=.962), *Social Status* (M=4.593, SD=1.010), and *Salary* (M=3.926, SD=1.299). The follow-up Paired-Samples T-Test showed that the PFPTs' ratings on them were significantly different from each other. Following the rule in the original scale, the two factors – *Expertise* and *Difficulty* – were combined to form the higher order factor called "Task Demand" (M=5.048, SD=.880), and the other two factors – *Social Status* and *Salary* – were combined to form the higher order factor called "Task Return" (M=4.259, SD=1.021). A further Paired-Samples T-Test found that the PFPTs' rating on *Task Demand* was significantly higher than their rating on *Task Return* ($t = 12.431$, $df = 308$, $p < .001$).

For the summated scales of the two factors in the DBT Scale, results of another Paired-Samples T-Test ($t=9.576$, $df=308$, $p<.001$) showed that the PFPTs rated *Satisfaction with Choice* (M=4.997, SD=1.192) significantly higher than *Social Dissuasion* (M=4.093, SD=1.174).

4.10.3 Summary

The results of this section show that the profession of school teaching was perceived by the policy-funded pre-service teachers as a relatively high demanding and low rewarding career, and to some degree they were dissuaded by others from choosing teaching as their future career; however, they were moderately satisfied with their choice to become a teacher.

4.11 PFPTs with Different Satisfaction Levels towards the Funding Policy: Classification and Comparison

The last task of the quantitative study was to explore identifiable groups of the policy-funded pre-service teachers (the PFPTs) according to their satisfaction levels with different terms of

the Government-Funded Teacher Education Policy (the GFTEP), and if the groups were identified, to compare group differences in career-choice motivation, study engagement, perception about teaching, satisfaction levels with the choice of teaching, and some demographics.

4.11.1 Cluster Analysis to Explore Identifiable Groups of PFPTs

A cluster analysis was conducted on data collected from 309 PFPTs by using the reduced Chinese version of the self-developed GFTEP Satisfaction Scale (the GFTEP-S Scale, see Appendix 11). The objective of the cluster analysis was to develop a taxonomy that segments PFPTs into different groups according to their satisfaction levels towards the terms of the funding policy – GFTEP. Thus, two clustering variables – *Satisfaction with Encouraging Terms* and *Satisfaction with Restrictive Terms* – were chosen to indicate levels of satisfaction the PFPTs rated on the encouraging and the restrictive policy terms respectively.

The possible issues of multicollinearity, outliers, and sample size in cluster analysis were addressed. Firstly, two approaches were taken to deal with multicollinearity in this study. On one hand, the two variables included in the cluster analysis were the two summated scales resulting from previous component factor analysis with varimax rotation on variables on the GFTEP-S Scale (see results of section 4.9), and there was no big difference in the number of items contained in the two summated scales (seven vs. five, see Table 49). On the other hand, the distance measure used in the non-hierarchical clustering techniques (K-means) in this study (see details in the following paragraphs) could take multicollinearity into account by compensating for correlation (Hair et al., 2010, p. 505). Secondly, no outliers was detected after examining the matrix of pair-wise proximity measures, which showed the Euclidean distance from each observation to every other observation. Lastly, the sample of 309 PFPTs was obtained through a random selection process from among an entire policy university as had explained in Chapter 3. So, the sample was representative of the PFPTs' base. As for the issue regarding the adequacy of the sample, it was assumed in this study that segments representing at least 20% of the total sample size would be meaningful. Thus, the segments consisting of 62 or more PFPTs would be considered as significant.

The number of cluster in the non-hierarchical cluster analysis was specified as THREE based on the understanding of realistic possibilities and the comparison between different cluster solutions. As reflected by the meanings of the two clustering variables, *Satisfaction with*

Encouraging Terms and *Satisfaction with Restrictive Terms* were rated by the PFPTs for their satisfaction levels on two types of policy terms with reverse contents. It was realistic to assume that some PFPTs would rate both of the variables high (group 1), some would rate both low (group 2), and some would rate "encouraging terms" high but "restrictive terms" low (group 3). Therefore, it would be impractical if only two clusters were selected by eliminating group 3. It would be abnormal and uninterpretable if any PFPTs had rated their satisfaction level with the "encouraging terms" low but at the same time rated it with the "restrictive terms" high (impossible group 4). Moreover, the researcher also investigated the two- and four-cluster solutions (see Appendix 42), and by comparison, the three-cluster solution (see Table 56) fitted the data best and created the most useful categories.

After the three-cluster solution was determined, the K-means programme with the optimising algorithm was selected as non-hierarchical cluster analysis in the study and the random initial cluster seed points identified by software (SPSS 22.0) were used. The K-means algorithm allowed for reassignment of observations among clusters until a minimum level of heterogeneity was reached. The clustering process was started once the clustering algorithm and cluster seeds were specified.

Results from the non-hierarchical three-cluster solution are displayed in Table 56. The non-hierarchical cluster solution resulted in cluster size of 72, 123 and 114 for cluster 1, 2 and 3 respectively. The cluster sizes suggested that none of the clusters contained less than 20% of the 309 PFPTs, which met the sample-size requirement set for clusters in this study. The F-values of ANOVA results indicated that the means of the two variables were statistically different at the significant level of .01 across the three clusters of PFPTs. This suggested that each of the three clusters was distinctive.

Table 56: Results of K-Means Three-Cluster Solution

	Cluster Number/Mean Values			Cluster Number/Mean-Centred Values				
Variable	1	2	3	1	2	3	F	Sig.
Satisfaction with Encouraging Terms	4.23	6.19	5.68	-1.32	0.64	0.13	283.07	.000
Satisfaction with Restrictive Terms	3.68	5.54	3.66	-0.73	1.13	-0.75	263.92	.000
Cluster Sample Size	72	123	114	72	123	114		

Note: The mean values of "Satisfaction with Encouraging Terms" and "Satisfaction with Restrictive Terms" were 5.55 and 4.41 respectively for the total 309 PFPTs.

The cluster meaning was interpreted by analysing the pattern of cluster mean values and mean-centred values (see Table 56). Cluster 1 contained 72 PFPTs and was distinguished by the lower- than-average means for both *Satisfaction with Encouraging Terms* and *Satisfaction with Restrictive Terms*. Compared with other two clusters, cluster 1 had the lowest mean for *Satisfaction with Encouraging Terms*, and very low mean (very close to the lowest) for *Satisfaction with Restrictive Terms*. Cluster 1, therefore, was called as the "low satisfaction group (LSG)" of PFPTs. In contrast, cluster 2, which contained 123 PFPTs, had the highest means for both the *Satisfaction with Encouraging Terms* and *Satisfaction with Restrictive Terms* among the three clusters. Thus, cluster 2 was referred as the "high satisfaction group (HSG)", and it was the largest group. Cluster 3 had 114 observations. This cluster was distinguished by a relatively higher mean for *Satisfaction with Encouraging Terms* but the lowest mean for *Satisfaction with Restrictive Terms*. For this reason, cluster 3 was named as the "medium satisfaction group (MSG)".

The meaning and name of each cluster of PFPTs was able to be explained by the centre position of each cluster in a two-dimensional coordinate (see Figure 18). The coordinate regarded the PFPTs' satisfaction level with the encouraging policy terms as X axis and their satisfaction level with the restrictive policy terms as Y axis. In the seven-point Likert scale, the mean value (See M1 in Figure 18) was four for both X and Y axis. However, for all the 309 PFPTs in this study, their average satisfaction levels with the encouraging and restrictive policy terms were X=5.55 and Y=4.41 respectively (see Table 49), which was marked as M2 in the coordinate (See M2 in Figure 18). The three clusters' meanings were visually understood according to their cluster centre's position in respond to M2 in the coordinate system. In dash-line coordinate system with the centre of M2, cluster 1 was in the third quadrant with mean values lower than both the X value and the Y value of M2. In contrast, cluster 2 was in the first quadrant with mean values higher than both the X value and the Y value of M2. Therefore, cluster 1 and cluster 2 were called as low satisfaction group (LSG) and high satisfaction group (HSG) respectively. Cluster 3 was located in the second quadrant with mean values higher than the X value of M2 but lower than the Y value of M2. Thus, cluster 3 was called as the medium satisfaction group (MSG).

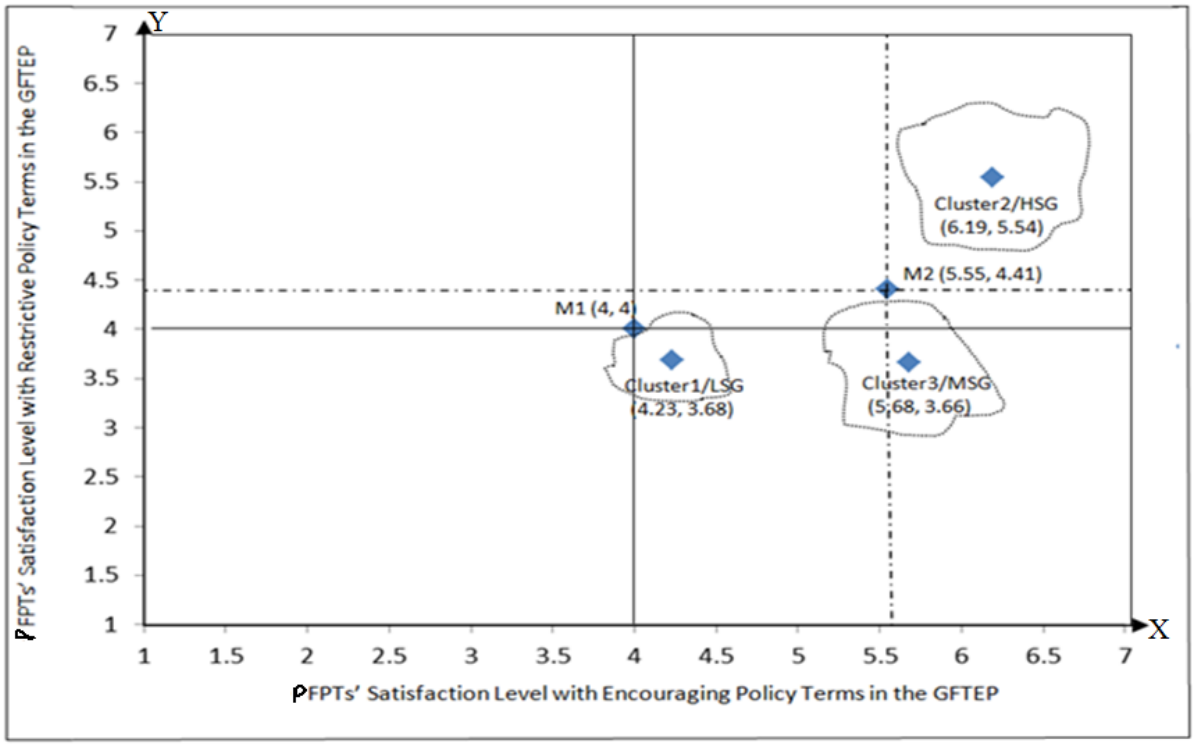

Figure 18: Two-Dimensional Coordinate System Indicating Positions of the Three Clusters of PFPTs

Validation of the three-group non-hierarchical cluster solution was assessed through testing its stability and criterion validity. The stability was examined given that factors like case order of the data may affect cluster membership when the initial seed points were chosen by the software (SPSS 22.0). To change the case order, observations were sorted by their "family income", ranging from those with poorest family background (lowest monthly income) to those with the richest family background (highest monthly income). All the observations were placed into one of the three clusters by applying the K-means algorithm for the second time. A cross-classification was conducted, which regarded the cluster membership variable from the first K-means solution as one variable and the cluster membership variable from the second K-means solution as the other variable. The results of the cross-classification (see Appendix 43) demonstrated a perfect cross-validation with all cases retained the same cluster membership across solutions, although cluster 1 in the first K-means solution became cluster 2 in the second K-means solution.

To assess criterion or predictive validity of the cluster solution, three variables (D1, D3, and D5) within the outcome factor of *Satisfaction with Choice* in the Decision to Become a Teacher scale (the DTB Scale, see Part D in Appendix 7) were selected as outcome measures.

D1 - I have carefully thought about becoming a teacher.

D3 - I am satisfied with my choice of becoming a teacher.

D5 - I am happy with my decision to become a teacher.

The three variables were not included in the cluster solution but they had a theoretically based relationship with the clustering variables. Given that the three variables correlated with each other (see Appendix 40), a MANOVA model was estimated by GLM method using the cluster membership variables as independent variables and the three criterion validity variables as dependent variables. The results showed that both the overall MANOVA model and the individual F-statistics were significant (see Appendix 44), which meant that the cluster solution was able to predict other key outcomes. This provided evidence of the criterion validity of the three-group clustering solution.

These tests, to conclude, verified both the cluster stability and the criterion validity of the three-group non-hierarchical cluster solution. The results presented a positive answer to the first part of the last quantitative research question, and suggested that the PFPTs could be divided into three identifiable groups in respect to their satisfaction levels with the funding policy – GFTEP.

4.11.2 Group Differences in Career-Choice Motivation, Study Engagement, Perceptions about Teaching, Decision to Become Teachers, and Demographics

To answer the second sub-question of quantitative research question No.9, the three-group cluster solution was profiled by a set of additional variables. These variables included both nonmetric variables (gender, ethnicity, home region, year of study, monthly family income, and NCEE above-bar scores) and metric variables (career-choice motivation, perception about teaching, decision to become a teacher, and study engagement). Thus, cross-classification was applied to test the relationships between each of the nonmetric variables, and ANOVA was used to assess the relationships among each of the metric dependent variables using the group membership variables as independent variables.

From results of the cross-classification (see Table 57), significant chi-square values were observed for two of the six demographic variables: “gender” and “year of study”. No

statistically significant difference was found for the other four demographic variables across the three groups. Distinctive profiles, therefore, were able to be developed for each group of PFPTs on their gender and year of study. The low satisfaction group (LSG) contained almost equal number of male and female PFPTs, and included more last-year PFPTs than first-year PFPTs. In both the high satisfaction group (HSG) and the medium satisfaction group (MSG), however, the number of female PFPTs was three times greater than that of male PFPTs, and more first-year PFPTs than last-year PFPTs were found in the two groups.

Table 57: Results of Cross-Classification on Demographic Variables for the Three Groups of PFPTs

Variable		Number of Cases Per Group			Total
		LSG	HSG	MSG	
Gender	Male	38	31	28	97
	Female	34	92	86	212
	Total (χ^2 =19.94, p<.001)	72	123	114	309
Ethnicity	Han	51	91	94	236
	Minority	21	32	20	73
	Total (χ^2 =3.95, p>.1)	72	123	114	309
Home Region	Rural	42	75	72	189
	Urban	30	48	42	120
	Total (χ^2 =.43, p>.1)	72	123	114	309
Family Income	Low Income Group	26	37	38	101
	Medium Income Group	23	42	39	104
	High Income Group	23	44	37	104
	Total (χ^2 =.885, p>.1)	72	123	114	309
Year of Study	First Year	28	69	66	163
	Last Year	44	54	48	146
	Total (χ^2 =7.31, p<.05)	72	123	114	309
NCEE Score	Low Score Group	28	52	48	128
	Medium Score Group	31	49	51	131
	High Score Group	13	22	15	50
	Total (χ^2 =1.51, p>.1)	72	123	114	309

The results of ANOVA on the metric variables across the three groups (see Table 58) showed that, except for *Social Dissuasion* (F=.197, p> .05), all the variables about career-choice

motivation, teaching perceptions, decision to teach, and training engagement were significantly different across the three groups of PFPTs.

Table 58: ANOVAs for Means of Metric Variables across the Three Groups of PFPTs

Category	Variable	Mean Values			F	Sig.
		LSG	HSG	MSG		
Career-Choice Motivation	Teacher Influence	4.5278	5.6179	5.2544	18.994	<.001
	Job Advantages (Extrinsic Motivation)	4.4524	5.0279	5.0201	11.341	<.001
	Social Value (Altruistic Motivation)	4.2448	5.2195	4.7774	21.707	<.001
	Personal Interest (Intrinsic Motivation)	4.0926	5.2886	4.6857	28.381	<.001
	Others' Suggestion	3.9120	4.4119	3.9708	6.341	.002
	Fallback Career	3.9861	3.5014	3.4678	4.099	.018
Perception about Teaching	Expertise	4.5000	5.5312	5.0965	21.113	<.001
	Difficulty	4.4676	5.1762	5.0526	14.170	<.001
	Social Status	4.1065	5.0190	4.4415	23.571	<.001
	Salary	3.6250	4.2764	3.7368	7.960	<.001
Decision to Become a Teacher	Satisfaction With Choice	4.1389	5.5556	4.9357	40.647	<.001
	Social Dissuasion	4.1528	4.0461	4.1053	.197	.822
Study Engagement	Enthusiasm	4.2269	4.9268	4.5877	13.463	<.001
	Persistence	4.0377	4.4274	3.9524	8.578	<.001
	Total Engagement	4.1323	4.6771	4.2701	11.375	<.001

Figure 19 further demonstrated the profile of each group of PFPTs on their career-choice motivation, perception about teaching, decision to become a teacher, and study engagement, based on the mean values shown in Table 58. The general trend was that the high satisfaction group of PFPTs rated all the variables significantly higher than the other two groups, except for the variables of *Job Advantages (Extrinsic Motivation)*, *Fallback Career*, and *Social Dissuasion*. Their profiles on different categories of variables are described as follows.

Firstly, for career-choice motivation, the high satisfaction group emphasised *Teacher Influence*, *Social Value (Altruistic Motivation)*, *Personal Interest*, and *Others' Suggestion*

significantly higher than the other two groups. Both the high satisfaction group and the medium satisfaction group placed similar level of importance on *Job Advantages (Extrinsic Motivation)* and *Fallback Career* as factors influencing their teaching career choice. Their similar emphasis on *Fallback Career*, however, was significantly lower than the low satisfaction group. The medium satisfaction group and the low satisfaction group rated the influence of *Others' Suggestion* on their choice of teaching similarly lower than the high satisfaction group.

Secondly, all of them perceived teaching as a high demanding career (see values of *Expertise* and *Difficulty*) with low returns (see values of *Social Status* and *Salary*). However, the differences were that both the high satisfaction group and the medium satisfaction group perceived teaching as more difficult than the low satisfaction group, and both the medium satisfaction group and the low satisfaction group perceived the salary of teachers as lower than the high satisfaction group.

When they decided to become a teacher, all the three groups experienced similar level of social dissuasion. However, their satisfaction levels with the choice of teaching were significantly different: the more satisfied they were with the policy terms, the more satisfied they were with their teaching career choice.

Lastly, during teacher training, the high satisfaction group experienced significantly higher level of study engagement in the aspects of *Enthusiasm, Persistence,* and *Total Engagement* than the other two groups. The medium satisfaction group had higher levels of *Enthusiasm* and *Total Engagement* than the low satisfaction group, and the two groups had similarly low level of *Persistence*.

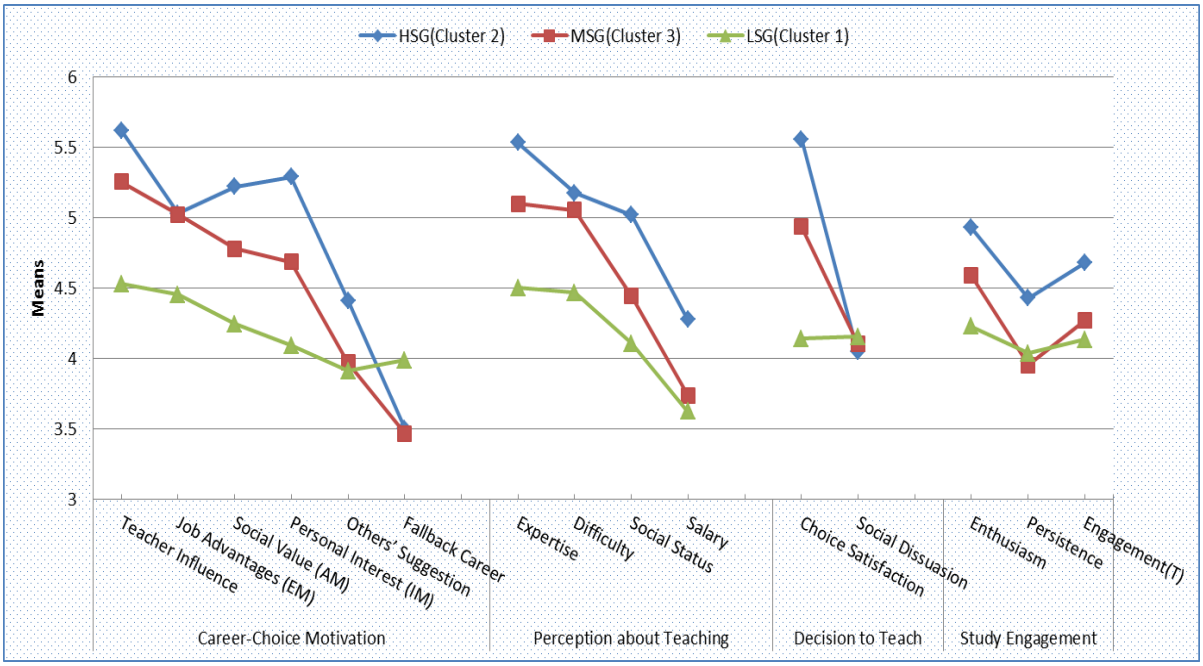

Figure 19: Profile of Career-Choice Motivation, Perception about Teaching, Decision to Become a Teacher, and Study Engagement for High Satisfaction Group (HSG), Medium Satisfaction Group (MSG), and Low Satisfaction Group (LSG) of PFPTs

To further assess the results, Post Hoc tests were conducted to compare differences of the three groups in career-choice motivation and study engagement. According to the results of Test of Homogeneity of Variances for all the variables, the method of Tamhan's T2 was chosen for the Post Hoc tests on the variable *Fallback Career* because its equal variance was not assumed ($p<.001$), and the method of LSD was selected for the other variables as their equal variances were assumed ($p>.05$).

Table 59 demonstrates the results of Post Hoc tests for the three groups. Examining the results found that, for their career-choice motivation, PFPTs in the high satisfaction group rated statistically higher at the significance level of .01 than those in the low satisfaction group on all the variables except for *Fallback Career*. PFPTs in the low satisfaction group, however, perceived *Fallback Career* as a factor to influence their teaching career choice significantly more important than those in the high satisfaction group ($p<.05$). As for their study engagement, PFPTs in the high satisfaction group experienced significantly higher levels of study engagement in teacher training than those in the low satisfaction group ($p<.01$) on both *Enthusiasm*, *Persistence*, and *Total Engagement*. These results, therefore, suggested that the high satisfaction group of PFPTs would emphasise altruistic and intrinsic motivations to teach more and experience a higher level of study engagement in teacher training than those in the low satisfaction group.

Table 59: Results of Post Hoc Tests for Career-Choice Motivation and Study Engagement across High Satisfaction Group (HSG), Medium Satisfaction Group (MSG), and Low Satisfaction Group (LSG) of PFPTs

Category	Dependent Variable	Method	Group		Mean Difference	Sig.
Career-Choice Motivation	Teacher Influence	LSD	LSG	HSG	-1.090*	<.001
				MSG	-.727*	<.001
			HSG	LSG	1.090*	<.001
				MSG	.364*	.020
	Job Advantages (Extrinsic Motivation)	LSD	LSG	HSG	-.575*	<.001
				MSG	-.568*	<.001
			HSG	LSG	.575*	<.001
				MSG	.008	.946
	Social Value (Altruistic Motivation)	LSD	LSG	HSG	-.975*	<.001
				MSG	-.533*	<.001
			HSG	LSG	.975*	<.001
				MSG	.442*	.001
	Personal Interest (Intrinsic Motivation)	LSD	LSG	HSG	-1.196*	<.001
				MSG	-.593*	<.001
			HSG	LSG	1.196*	<.001
				MSG	.603*	<.001
	Others' Suggestion	LSD	LSG	HSG	-.500*	.003
				MSG	-.059	.729
			HSG	LSG	.500*	.003
				MSG	.441*	.003
	Fallback Career	Tamhan's T2	LSG	HSG	.485*	.030
				MSG	.518*	.009
			HSG	LSG	-.485*	.030
				MSG	.034	.997
Study Engagement	Enthusiasm	LSD	LSG	HSG	-.700*	<.001
				MSG	-.361*	.010
			HSG	LSG	.700*	<.001
				MSG	.339*	.005
	Persistence	LSD	LSG	HSG	-.390*	.005
				MSG	.085	.542
			HSG	LSG	.390*	.005
				MSG	.475*	<.001
	Total Study Engagement	LSD	LSG	HSG	-.545*	<.001
				MSG	-.138	.284
			HSG	LSG	.545*	<.001
				MSG	.407*	<.001

4.11.3 Summary

According to the policy-funded pre-service teachers' (PFPTs) satisfaction levels with different policy terms in the Government-Funded Teacher Education Policy (GFTEP), three identifiable groups of PFPTs were identified and validated in this study: the high satisfaction group (HSG), the medium satisfaction group (MSG), and the low satisfaction group (LSG). More male and last-year PFPTs were found in the low satisfaction group than in the high and medium satisfaction groups. All the three groups perceived school teaching as a high-demanding but low-rewarding profession, and they experienced similar social dissuasion when making the decision to become a teacher. However, the more they were satisfied with the funding policy (the GFTEP), the more they were satisfied with their choice of teaching. The PFPTs in the high satisfaction group emphasised *Teacher Influence, Social Value (Altruistic Motivation), Personal Interest (Intrinsic Motivation),* and *Others' Suggestion* as motivations to teach significantly more than those in the medium and the low satisfaction groups. Moreover, the PFPTs in the high satisfaction group experienced significantly higher levels of study engagement in teacher training programmes than those in the medium and the low satisfaction groups.

CHAPTER 5: NARRATIVE STORIES OF SEVEN POLICY-FUNDED PRE-SERVICE TEACHERS

Introduction

This chapter reports in narrative forms the reflective thoughts and attitudes of seven policy-funded pre-service teachers (the PFPTs). This qualitative material is seen as an illustrative complement to the substantive quantitative data developed in the survey.

The qualitative data are gathered by online audio interviews with seven PFPTs who participated in the previous questionnaire survey. These data will be analysed to explore the two qualitative research questions raised in the present study: (1) how do the policy-funded pre-service teachers with different attitudes towards the policy explain their motivations to choose teaching, and (2) how do they explain their study engagement in teacher training?

This chapter will begin with a brief introduction of the seven interviewees. To protect the identities of the participants, pseudonyms will be used. Then, it is going to compile narrative stories of the seven policy-funded pre-service teachers. Each story will comprise at least three basic parts: the process of making the choice of teaching before attending university, study engagement in teacher-training programmes at university during the past two years, and perceptions about teaching after two years of teacher-training. These stories will be classified into three groups according to each narrator's satisfaction level towards the Government-Funded Teacher Education Policy, and will represent different policy-funded pre-service teachers' voices to the two qualitative questions. Analyses on these stories are expected to demonstrate the complexity of career-choice motivations and the reasons for having various levels of study engagement for different policy-funded pre-service teachers.

5.1 Demographic Description of Participants

The seven interviewees were all enrolled in the policy university of SWU as the policy-funded pre-service teachers (the PFPTs), and they were all at their second year of university study at the time of the interview in 2013. All of them but one (Zhen Zhen) identified themselves as belonging to the Han majority.

According to the previous quantitative findings, the seven PFPTs were classified into three groups: the high satisfaction group (HSG), the medium satisfaction group (MSG), and the

low satisfaction group (LSG). This classification was based on ratings of the interviewees on a seven-point Likert scale about their satisfaction levels towards different terms of the Government-Funded Teacher Education Policy (the GFTEP) in the previous questionnaire survey (see Table 60). The detailed demographic information of the interviewees is going to be described by group.

Table 60: Policy-Satisfaction Levels of the Seven Interviewees

Name (Pseudonym) of Participant	Mean Value of Satisfaction with Encouraging Terms	Mean Value of Satisfaction with Restrictive Terms	Satisfaction Group
Li Wen	7.00	6.40	High Satisfaction Group
Da Wu	7.00	5.80	
Xiao Fang	6.00	5.40	
Zhen Zhen	6.14	3.80	Medium Satisfaction Group
Wen Jing	6.00	3.60	
Bin Bin	5.43	1.60	Low Satisfaction Group
Zhu Min	2.57	2.20	

5.1.1 Three PFPTs with High Levels of Satisfaction with the Funding Policy

Li Wen was 20 years old at the time of interview in 2013. She came from a rural area in Sichuan Province of China, and her family income was approximately 4,000 RMB per month. Her score in the National College Entrance Examination was 26 points higher than the admission score for first class universities set by the Sichuan Province, and she was admitted as a policy-funded pre-service teacher majoring in Preschool Education in a teacher training programme in SWU. Li Wen said she planned to teach children in a kindergarten after graduation.

Da Wu was 21 years old in 2013. Born and raised in a rural area in Jiangxi Province of China, he had a relatively poor family with monthly family income of about 2,000 RMB. His score in the National College Entrance Examination surpassed the provincial requirement for first

level universities by 37 points. Da Wu was studying Mathematics in a teacher training programme in SWU. He planned to become a Math teacher in a senior high school after graduation.

Xiao Fang was a 19-year-old lady. She came from an urban area in Guangdong Province of China and her family monthly income was about 4,000 RMB. Her score in the National College Entrance Examination was 14 points higher than the requirement, and she was enrolled as a policy-funded pre-service teacher in a teacher training programme in SWU. Xiao Fang was majoring in Chemistry and she planned to teach Chemistry in a senior high school after graduation.

5.1.2 Two PFPTs with Medium Levels of Satisfaction with the Funding Policy

Zhen Zhen was a 22-year-old lady. Different from other interviewees, she identified herself as belonging to ethnic minority. Her home was located at a rural area in Sichuan Province of China, and her family monthly income was around 2,500 RMB. She passed the National College Entrance Examination (she did not tell the exact scores) and was enrolled as a policy-funded pre-service teacher in SWU. Zhen Zhen majored in English, and after graduation she planned to teach English in a senior high school.

Wen Jing was 19 years old. She was born and raised in an urban area in Hunan Province of China. After passing the National College Entrance Examination with eight points higher than the requirement, she was admitted as a policy-funded pre-service teacher in a teacher training programme at SWU. Majoring in Chemistry, Wen Jing planned to become a Chemistry teacher in a senior high school after graduation from university.

5.1.3 Two PFPTs with Low Levels of Satisfaction with the Funding Policy

Bin Bin was 20 years old. His hometown was in a rural area in Sichuan Province of China, and his family income was around 3,000 RMB per month. He passed the National College Entrance Examination with 18 points higher than the requirement, and was enrolled as a policy-funded pre-service teacher in a teacher training programme in SWU. Bin Bin was majoring in Preschool Education. He said he will become a kindergarten teacher after graduation from university.

Zhu Min was 20 years old. Although she was born and raised in a rural area in Yunnan Province of China, she had a relatively rich family with monthly income of about 5,000 RMB. She passed the National College Entrance Examination with 90 points higher than the requirement. As a result, she was successfully admitted as a policy-funded pre-service teacher in a teacher training programme in SWU. Zhu Min was an undergraduate majoring in Chemistry Education. She said she will become a Chemistry teacher in a senior high school after graduation from university.

5.2 Voices from the High Policy-Satisfaction Group

5.2.1 The Story of Li Wen

Li Wen was a policy-funded pre-service teacher at Southwest University in the major of Pre-school Education. This major was selected by herself as her first choice on the university application form. She decided to become a kindergarten teacher based on her personal interest.

Becoming a Kindergarten Teacher out of Personal Interest

The whole process for Li Wen to choose a major and university was mainly completed by herself. She searched information and chose the major of Pre-school Education according to her own interest:

> "I still remember the situation when we were filling the university application forms soon after graduation from high schools. Our school sent to us many brochures introducing universities and majors. Some of my school teachers said to me that my score in the National College Entrance Examination seemed to meet the requirement of Southwest University. I was not familiar with how to fill the form at that time, so I brought all the brochures back home. I read the brochures over and over again at home in order to know what kind of universities and majors I could apply for. When I opened a brochure and turned to the page introducing Southwest University, I paid close attention to the majors. There were majors like English, Pre-school Education, etc. I was very interested in teaching in kindergarten and I knew graduates in the major of Pre-school Education would be kindergarten teachers. So, without any hesitation, I put the major of Pre-school Education as my first choice in the application form to Southwest University. My parents said nothing about my decision, and luckily, I was admitted by the university."

Li Wen was interested in kindergarten teaching for several reasons. She was familiar with the profession; she enjoyed the working environment at kindergarten; and most importantly, she liked children:

> "I think my interest in teaching at kindergarten was aroused by three aspects. Firstly, I have a cousin who is a kindergarten teacher in Chengdu. She told me many stories happened in that kindergarten. Sometimes I went to that kindergarten and played games with children there. So I had accumulated many experiences about the profession."
>
> "Secondly, I like the working environment of kindergarten. It is simple and pure, which is quite different from many other professions. It is well known the working environment of many professions in China nowadays is very 'complicated' due to Chinese cultures' emphasis on interpersonal relationships. I personally don't like that working condition because it is very easy to get in trouble. However, the working environment of kindergarten is relatively simple and there is no 'battle of wits and courage' or 'intrigue against each other' in kindergarten. The annoyance of kindergarten teachers, if they have any, is usually caused by the naughtiness of kids and often disappears quickly. I think that kind of simplicity in kindergarten is really good."
>
> "Last but not least, I like children very much. I still remember what had happened several years ago when I met a group of kindergarten kids for the first time. That day I was invited by my cousin to meet her at the kindergarten where she was teaching. When I arrived there, the class was just over. Many children were waiting in the classroom for their parents to take them home and my cousin was standing in front of them. As soon as I entered the classroom, some kids were asking my cousin simultaneously: 'Miss Zhang, who's she?' One child put up his small right hand to get my attention and asked me: 'Teacher, what's your name please?' After I answered their questions, many kids highly raised their hands and told me: 'Miss Li, I want to sing a song to you…' I said to them: 'That will be great! Can you please sit down? You can sing songs one after another, OK?' Although that was our first meet, they listened to me carefully and followed my order to sit down quietly before starting to sing a song one after another. Their voice was very loud and I felt so happy."…"I often went to that kindergarten afterwards and they never regarded me as a stranger or an intruder. When I played games with them on the playground, they regarded me as one of their teachers. When I guided them to go outside kindergarten to eat ice-creams, they treated me as their good friend. On weekends, if they

met me at a park, they would not call me teacher but call me 'mommy'. Sometimes they may become naughty and noisy, but they were always attached to me and we gradually became really good friends."

Li Wen's personality was also suitable to become a kindergarten teacher:

"I think if I become a kindergarten teacher, children will like my personality. I am a vivacious, cheerful and funny lady. I have a happy smile and a sweet voice. Although I am 20 years old, I am like a child when I am doing things. All the kids living around my house like me very much. Once I come back home, they will come and ask me to play games with them. When I talk with them, I will make them laugh. And I join all their activities and enjoy them: I watch the cartoons they watched; I can sing almost all the children's songs they can sing; I tutor them when they are doing their homework. I never refuse their invitation for playing games with them. For example, if they ask me to do rope skipping, I will do it with them and I never say: 'Oh no, that's childish.' Therefore, it is quite impossible for children to exclude me from their activities."

The government-Funded Teacher Education Policy had no decisive influence on Li Wen's choice of becoming a kindergarten teacher. However, the consistency between the restrictive policy terms and Li Wen's expectations on professional development reinforced her determination to choose teaching:

"I knew the policy when I selected my major and university. I think the policy had only a slight influence on my choice of teaching in kindergarten as a career, but I don't think it had a final say on my choice. Actually, my ideas were very simple: if you want to become a teacher, it goes without doubt that the policy will help you a lot. The policy terms say that the graduates have to teach for minimum ten years. However, for a person like me who wants to teach for 20 years or even for the whole life, what's the difference of teaching for at least ten years? One difference between the self-sponsored pre-service teachers and the policy-funded pre-service teachers may be that the former can teach in other provinces but the latter cannot. But again, for me, that is not a problem. I think there is no big difference between my home province Sichuan and other provinces. And I like to teach in Sichuan Province although it is located in southwest part of China. Many people think big cities in coastal provinces provide them with a better developmental platform. Even if they are right, I think if too many people flock into coastal provinces, the fierce competitions there will make even talented people feel great pressure. This is

just like what usually happened at schools. A student with high exam scores in an ordinary class was transferred to a top class in the hope that he would get better education and hence higher scores. However, it turned out to be that his scores became lower and lower because he felt too much pressure from other students in the top class."

Medium Level Study Engagement

During the first two years of university study, Li Wen was neither studying very hard nor indulging in other activities. Her study engagement was influenced by her personality, course contents, and teaching styles. Moreover, the policy seemed not to have any negative impacts on her study engagement at university:

"I think I am lazy and playful. I am not a workaholic. Sometimes I fell asleep or fiddled with my mobile phone at some classes. However, I have never skipped classes. For these courses that I am interested in, I study very hard, but for some boring courses I just want to sleep. You see, I study very hard for the three courses on dancing, playing piano and singing, but I feel I am not hard-working on other courses. But I never reject any course even when the teachers make it boring. Some lecturers' teaching is really boring. If I find they are reading the textbook or if I feel what they teach is similar to the book content, I will simply not study hard."

"Many people may have the opinion that the policy-funded pre-service teachers (PFPTs) have no pressure for job hunting because the government will assign a teaching job for each of them after graduation. Actually, that is a partial opinion or a kind of misunderstanding. I am a PFPT and I feel big pressure for finding a good teaching job in a kindergarten. The reason is that there are 'mutual selection job fairs' for all graduates including the PFPTs, during which the employers and the graduates choose each other. Only those who failed to find a teaching job by themselves in all mutual selection job fairs will be assigned by the government to the schools where teachers are in urgent need. Take myself as an example, I come from Mianyang City in Sichuan Province, but I want to become a kindergarten teacher at a good school in a better city – Chengdu, the capital city of Sichuan Province. So, I cannot just waste time at university and wait for the government to assign me to a poor school in a poor area. Instead, I have to think about whether I have the capacity required by that school in Chengdu, and if not yet, how can I improve and develop myself through hard work at university."

Perceptions about Kindergarten Teachers: High Demand, Low Return

After being trained in the programme of Pre-school Education at Southwest University for almost two years, Li Wen's understanding about the profession of teaching in kindergarten had been deepened and broadened. In her views, teaching kindergarten children was a high demanding career; however, kindergarten teachers did not have a high social status and they were not paid equally:

> "Before attending university, I thought it was easy to teach children in kindergarten and kindergarten teachers were just like babysitters to take care of kids. But after two years of study in the major of Pre-school Education, I think it is a difficult profession which needs teachers to have comprehensive knowledge and skills. To be exact, I think the requirement for kindergarten teachers, in a sense, is higher than that for teachers in senior high schools. A lecturer once told us that the children aged three to six spend most of their time with teachers in kindergarten, and during these age periods, every word and action of kindergarten teachers will have big influences on the children. I think what she said is right. As I observed, many parents send their children to kindergarten early in the morning and take them back home in the evening. In the kindergarten, the only people these children can contact with are the kindergarten teachers and other children. So the influences exerted by these teachers are vital for forming these children's good habits, and the requirements for the kindergarten teachers are very high."

> "As for the salary of kindergarten teachers, I think it is relatively low when comparing with other jobs. I once read a message on a blog which said the average salary for kindergarten teachers were only 2,500 RMB per month, and it listed many 'tailenders' for them. I don't completely agree with the message. I think it was just an average number. Actually, there is a huge gap between teachers in different kindergartens in terms of their salaries. In poor rural areas, kindergarten teachers' salary may be just several hundred RMB per month. That's real. However, in the urban areas, some kindergartens, such as the international kindergarten, pay extremely high salary for their teachers." … "Moreover, I don't think people in the society place importance on kindergarten teachers. The reason may be that they don't know much about this profession. So the social status of kindergarten teachers is very low. Actually, it is much lower than that of senior school or university teachers."

5.2.2 The Story of Da Wu

Da Wu was a second-year male undergraduate majoring in Mathematics Education in Southwest University. As a policy-funded pre-service teacher, he would become a math teacher in a senior high school after graduation.

Motivations to Choose Teaching: Job Advantages, Social Value and Others' Suggestion

Da Wu had a low self-efficacy for pursuing many jobs except for teaching. Teaching as a profession, according to his understanding, had many advantages over other jobs: easy to get started, free of pressure, and full of free time. These advantages increased his sense of competence for taking up the profession:

> "I am afraid I don't have enough capacity to work on many jobs. Working as a bank clerk or a doctor, for example, will make me feel stressed. When I stay with adults, I get used to think about what do they really want to do and what are their purposes for approaching me. But I think teaching as a profession is quite different. I once was a school student before attending university and I know students are pure in thought and not materialism. So, I will feel relaxed if the people I work for in my future career are students. Although teaching as a career for a man is not as profitable as other professions, I think teaching is comparatively easy and it is well known that teachers have a lot of free time including two long holidays every year."

The social value of teaching was another motivational factor for Da Wu to choose teaching as a career. He had a strong desire to help children succeed; and gaining respects from both students and parents for his teaching was what he valued:

> "I like the feeling of teaching children what I learned and I cherish the experience of teaching others. As a policy-funded pre-service teacher, I have to teach for ten years. I hope all my students during that period will get graduated and be equipped with useful knowledge and skills for the society. I am looking forward to that enjoyable and rewarding experience. When I was a student, I admired those teachers who had personal charms. If I become a teacher, I will try my best to become a good teacher with personal charms and help my students improve their academic achievements. Then, I will be respected and admired by my students, and their parents will give me good comments as well. Just imagining that makes me feel so good."

At the final stage of choosing a major and a university, Da Wu's uncle analysed the benefits of choosing a teacher-training programme in Southwest University. The suggestion from his uncle coincided with his own view and reinforced his decision to become a teacher:

> "I have an uncle who is a school teacher. He is a knowledgeable and considerable person who knows the profession of teaching very well. When it came to choose a major and a university on the university application form, he recommended me the major of Mathematics Education in Southwest University. He said that Southwest University was a national key university with moderate requirement for the National College Entrance Examination scores. My score was not high enough to go to some national top universities, but it should reach the requirement of Southwest University. He further analysed that the university was very strong in the major of Mathematics Education; therefore, graduates in that major were easy to find a good teaching job in a decent school. I fully agreed with my uncle and I thought what he said was very reasonable. If I chose that major, I would become a math teacher, and that was what I wanted to be. So, I made up my mind and put Mathematic Education as the major in the application form submitted to Southwest University. Finally, I was accepted as a policy-funded pre-service teacher here in Southwest University."

When Da Wu chose the major and the university, the Government-Funded Teacher Education Policy adapted to his need and fuelled with his inclination to choose teaching as a career:

> "I didn't know the Government-Funded Teacher Education Policy until my uncle introduced it to me when I was filling the university application form. After reading it, I knew it was implemented by six universities including Southwest University. I think the stipulations of the policy are really good and appropriate for me. I don't think I can do other jobs well, but I am sure that I can teach well. The policy just assures I will be a teacher anyway."

Study Engagement: High but Inconsistent

After attending university, Da Wu had generally studied hard because of the difficulty of the courses. However, the lack of ambitiousness at university had negative influences on his industriousness on study:

> "There are three major courses in each semester for undergraduates studying Mathematic Education in Southwest University. I personally find these courses are very difficult

because I cannot understand many points the lecturers explained in class. So, I ignore the process when a lecturer deduces an equation. However, I listen carefully to the methods the lecturers use to solve the math problems, and take notes when they report results and make conclusions. On average, during each class, I spend a third of the time listening to the lecturer, two thirds of the time reading relative books by myself, and occasionally I may 'zone out' for a while. After class, I go with my classmates to the library for self-study to make up the points I missed."

"Doing work for the Student Union takes up parts of my free time. When I have no class to take and no union work to do, I will think about whether to study or not. The decision will depend on whether I can pass the final exam with satisfactory marks. If I think I can, then I will go for a relaxation. I think there is no need for me to work very hard at university. You see, what the university really emphases is the final exam scores. Students can earn honours and certificates with high exam scores, but I don't care about those things. So sometimes I persuade myself to stop studying as long as I can pass the final exam."

Perceptions about Teaching as a Career: Low Demand, Low Return

As a second-year undergraduate majoring in Mathematics Education, Da Wu perceived his future career of teaching as a low demanding and low returning profession. According to his understanding, the criteria adopted by schools for employing new teaching staff reflected the low requirements for teaching; and the comparatively low salary and lack of social respects for teachers embodied the low return for teaching:

"I don't think the requirements for teachers in current schools are high. This can be seen from how the school leaders evaluate teachers. When I was a high school student, there was a job fair in our school which planned to employ new teachers for our school. Many university graduates attended it. I was standing beside the site and observed the whole process of interviewing. I found that what our school leaders really valued was the graduates' university scores, certificates, and their teaching skills. The school employers, including the principal and the class head teachers, paid no attention to whether the graduates cared about students or how the graduates would shape students' characters. The consequence was bad. Many teachers in our school only emphasised on improving students' scores in exams. They didn't know students' real thoughts and they didn't encourage those students who failed in the exams."

"At the same time, I think teachers have a low salary. The information I got from internet says that on average a school teacher' annual salary is around 40,000 RMB; the annual salary for a bank clerk, however, is between 70,000 to 80,000 RMB. The internet message also says that nurses' salary is similar to that of teachers, but nurses have extra income. Teachers are different: they have no extra income because they spend most of their time in education and cannot take up a second job. One of my high school teacher used to complain that his salary only increased by 300 RMB during 14 years from 1998 to 2012. He said the commodity price had increased by many times during that period of time. The consequence was that he brought his dissatisfaction into his teaching work and classroom, and the students suffered."

"Theoretically, the whole nation has the tradition of respecting teachers and places great importance on education. But in reality, there is usually a gap between what people thought and what people did. For example, almost all the students' parents think teachers are very important. If the parents find that a teacher teaches their child well and the child can get high scores in exams with the help of the teacher, they will place all their hopes for their child academic success on the teacher. However, they simply send their child to school and 'hand the child over to the teacher', and then they leave to focus on their own businesses. They never actively cooperate with teachers' work. They are so busy with earning money that they seldom communicate with the teacher about their child's study. The only occasion when they meet the teacher is the annual parents-teachers meeting. On other occasions in our school, I only see teachers make timely phone calls to parents to tell them their child's progresses at school. I think parents should contact with the teachers timely and frequently to show their respects for teachers' work, but they seldom do it and always take the excuse of being busy with work."

5.2.3 The Story of Xiao Fang

Xiao Fang was a second-year policy-funded pre-service teacher majoring in Chemistry Education at Southwest University. After graduation from university, she would become a Chemistry teacher in a senior high school. However, she had not decided to become a school teacher until it came to choose a major at university.

Career-Choice Motivations: Others' Suggestion, Personal Interest and Job Advantages

Xiao Fang had many different ideas about what to do when she was young, but she did not make up her mind to teach until she graduated from high school. Her choice of becoming a school teacher was mainly influenced by the suggestions from her parents, relatives, and teachers:

> "Most of my classmates do not think carefully about what careers they will pursue in the future. Slightly different from them, when I was a child, I had imagined what to do after I grow up, for example, to be a lawyer, to be a doctor, etc. However, those ideas were all 'daydreams'. I didn't have a definite answer to the question of what to do in the future until it came to fill out the college entrance application form… At that critical moment, I talked with my parents about which university and major to choose. My father suggested me to apply for a teacher-training university because he thought there were many benefits for a female to become a teacher. My mother held the same opinion and cited the good living condition of my aunty, who was a school teacher, as an example to support my father's idea. I was also told by one of my head-teachers at the senior high school that her daughter enrolled in a teacher-training programme at Southwest University."

Xiao Fang finally accepted their suggestions to become a teacher because she had personal interest in teaching and she believed the advantages of teaching as a career:

> "Actually, many of my relatives were teachers. Based on their experience and living conditions, I agreed that teaching as a profession had many advantages. The profession was stable and had fixed long holidays. Compared with workers at companies, teachers at school were able to enjoy more free time in life. I did not hate teaching actually; instead, I had a positive attitude towards it and felt interested in school teaching. Last and most importantly, under current situation of difficulty in job-hunting, the policy term that guaranteed a teaching job for graduates of policy-funded pre-service teachers was very attractive. So, I finally took their suggestion and put Chemistry Education as the major at Southwest University on the application form. Luckily, I was accepted."

High Study Engagement as a Habit

Xiao Fang devoted a large quantity of time and energy in her study at university in the past two years. Her hard-working was a result of her previous study habit:

> "I guess around 70% of my time is spent on teacher-training programmes at this university. That is mainly because I have the habit of hard working in order to get high

marks in exams. This habit was formed when I was at school, and now it is still working. I don't think I should idle away my precious time at university, and I think I should especially focus on courses related to my major. When I study the interesting courses, such as Physical Education and some optional courses, I would spend much more time and energy. Even if I am not interested in some of the courses, I would force myself to learn them well. I think I will study even harder on courses of Psychology, Pedagogy and Teaching Skills, which will start from next semester."

Perceptions about Teaching: High Return, High Demand

After two years of teacher-training at university, Xiao Fang perceived teaching as a well-rewarded profession compared with other jobs.

"I think teachers are well-rewarded not only by salary but also in other ways. Compared with others who work in a company, teachers have a more stable job and enjoy longer holidays. Moreover, in general, teachers gain a high degree of social approval and are respected by many people. Good teachers are very popular in the schools and warmly welcomed by students. Even after retiring from teaching for several years or decades, some teachers are still remembered by their students who appreciate teachers' help and pay frequent visits to them."

Meanwhile, Xiao Fang regarded teaching as a challenging career which requires high for teachers in many ways besides classroom teaching:

"At the same time, school teachers bear heavy pressures. I was told by a university lecturer that it was easy for novice teachers, if they didn't know how to adjust themselves to stress, to get mental-health problems because of the heavy pressure in teaching. I think it really requires a lot for teachers nowadays. They have to impart a lot of knowledge to students. Meanwhile, they have to learn how to create a harmonious classroom environment, how to help students to solve interpersonal problems, and how to deal with the complex relationships with others. All these are challenging for teachers."

"Moreover, nowadays, teachers are facing a dilemma: the society gives heavy responsibilities to teachers but fails to endow teachers with enough rights to do things. For example, most parents send their children to schools and then leave because they think teachers will take all responsibilities for their children. If anything wrong happened to a student in a school, even if it is not the teacher's fault, people in the society will generally

blame that teacher because they think it happened in that school and the teacher should be responsible for students… Many students' parents have a high expectation for teachers to teach their own kids well, but they give teachers many limitations on what to do. Although it is difficult to manage naughty students in classroom, teachers are not allowed to punish or shame them. What they can do is only drumming into the students that they should follow the disciplines. But, what if the students do not listen to them?"

5.3 Voices from the Medium Policy-Satisfaction Group

5.3.1 The Story of Zhen Zhen

Zhen Zhan was a second-year policy-funded pre-service teacher majoring in English Education at Southwest University. After graduation, she was going to become an English teacher in a high school. However, she didn't expect to become a teacher when she was a high school student. Several reasons as follows led her to choose teaching as her future career. Among these reasons, the attraction of the Government-Funded Teacher Education Policy and the role model of previous teachers were the decisive factor.

Career-choice Motivations: Fallback Career, Others' Suggestion, Job Advantages, Personal Interest, Policy Attraction, Teacher Influence, and Social Value

Zhen Zhen wanted to work on a job with a high salary and she had no interest in teaching for a long time:

"When I was a child, I didn't want to become a teacher. Even when I was in high school or when I just graduated from high school, I didn't expect I would become a teacher. One reason was that as a student from a poor rural area, I hoped to become rich. So I wanted to choose a major which could help me to work in a big company with a high salary. The other reason was that I didn't like jobs such as teaching that had no varieties or changes. If I became a teacher after graduation, I would have to teach and stay in a school and probably could not change workplaces, and I could predict what would happen in the next decades. I just didn't like such a stereotyped working mode."

When it came to choose a major at university, Zhen Zhen's friends gave her suggestions. She valued the advantages of teaching as a career recommended by her friends, and by this time she had developed a small amount of interest in teaching which also played a role:

"As an ethnic minority student, I had the chance to study at Southwest University for one-year foundation courses before applying to become an undergraduate at the same university. After I completed the foundation courses, I had to apply for a major at the university like others. At that time, I found there were so many teacher preparation programmes which I didn't know before. So, I asked for suggestions from my friends who were pre-service teachers at the university. They told me various kinds of advantages of teaching as a career. I knew their advice was just advice, and I had to make the final decision. I thought over their suggestions and I realised that becoming a teacher actually had some advantages catering for my need. Firstly, it was comparatively easy to find a teaching job currently. Secondly, teaching as a stable job suited female graduates well. Thirdly, teachers had such long holidays. Moreover, although I still didn't particularly like it, I had a little interest in the profession of teaching at that time."

Ultimately, Zhen Zhen's final decision to become a teacher was driven by financial pressures. Living in a poor family in a rural area of China, Zhen Zhen was greatly influenced by the Chinese traditional culture. She did not want her education to cost her parents much money. An unexpected car accident which happened to the poor family made its financial situation even worse. At that critical moment, the Government-Funded Teacher Education Policy let her see a ray of hope and she finally determined to become a policy-funded pre-service teacher:

"I am a daughter of a poor family in an ethnic minority community. As a female, I don't want to be involved into society too much and I prefer to stay at home to take care of my family. And I want to relieve my parent's financial burden by costing them less tuition fees. Although both the government and the society openly oppose sex discrimination, a family usually would like to invest more on their sons than daughters. The main reason is that when a daughter gets married, she will move out to join her husband's family and live there. So, I personally don't want my parents to spend too much money on my education…Just a few months before I graduated from high school, a terrible car accident happened to my father. The expensive medical expenditures put my poor family under mountainous debt. I just didn't want to ask them for tuition fees to avoid adding any more pressure on them. Fortunately, I learned of the Government-Funded Teacher Education Policy and I knew undergraduates in this programme would be free of all fees at university. That was great news for me because I can save my parents money if I enrol in it. Therefore, I made up my mind and chose the major of English Education in the application form to Southwest University."

Zhen Zhen's choice of teaching was also influenced by her previous school teachers. She got many positive experiences with teachers when she was in junior high school. Her teachers acted as role models encouraging her to become a good student:

> "When I was a junior high school student, many teachers liked me very much. They said I was a smart, honest, hard-working, and lovely young lady who always got high scores in exams. After being elected as the class monitor, I had more opportunities to talk with teachers. All those good experiences with teachers increased my study interest during junior high school education to the highest point. I still remember how hard I studied when the senior high school entrance examination was around the corner. I took every evening class during that period. After evening classes, I came back home very late. Usually, all my family members were watching TV when I arrived home. Instead of joining them for entertainment, I directly went into my study room and continued to study till midnight. So, I had very strong self-study abilities ever since. Moreover, I was able to concentrate so well at class that I could write down over 90% of what the teacher had taught. Our physics teacher once made a test on our concentration at class by carrying out an exam among students immediately after she finished the class. I got a full mark in that test."

Among those teachers, Zhen Zhen especially mentioned two school teachers. What they had done exerted great influences on her career-choice motivation:

> "There were two teachers in my junior high school who left me with deep impressions. They both had a strong sense of responsibility and cared for students very much. I was moved by what they had done and hoped to become a good teacher like them."

> "One was my English teacher. He usually raised questions to us at class, and the teaching and learning atmosphere in his classroom was relaxing. All my classmates got interested in studying; nobody was forced to learn English. I was extremely active in his class and often volunteered to answer his questions. Every afternoon after the radio exercises, he made use of his spare time to give me and another student free tutoring, such as rectifying errors made in our exams. He paid a lot for our study, and we respected him very much."

> "The other one was my Physics teacher. She was one of the few female Physics teachers in our school. Teachers teaching physics were usually regarded as talented people with high IQ. Therefore, we all admired her. As a teacher of a class going to take the Senior

High School Entrance Examination, she was very strict and responsible. During that critical period, many rich parents paid a lot of money to send their children to some good private cram schools in the hope that their children could get extra tutoring and hence high scores in the entrance exam. Our Physics teacher bought many teaching materials, including entrance examination papers of previous years, and she gave the whole class free tutoring. Sometimes, she even initiatively invited some excellent student for extra free tutoring. We knew she had a very high expectation for us. She hoped we were all able to get high scores and be accepted into key senior high schools. The longer she had been our teacher, the more we respected and liked her."

However, after becoming a pre-service teacher at university, Zhen Zhen realised that her school teachers personally did not want her to become a teacher because they had "very high expectations" for their excellent students' future career development:

"My school teachers didn't know that I chose to become a school teacher in the first place. After I attended Southwest University, I contacted my school teachers including the two I mentioned above and told them that I was a policy-funded pre-service teacher. All of them felt somewhat surprised. They didn't expect me to become a teacher. I felt upset when I heard their responses, but I quickly calmed down because I knew the reasons for their reactions. In their view, it was very difficult for students in rural area schools to get high scores in the National College Entrance Examination. The students who were able to pass the exam and be accepted by the national key universities were excellent students in their eyes, and they placed very high expectations for those students' future development. Moreover, most people in the society including my teachers believed that jobs like working in a large enterprise paved the way for employees' promotion and career development. Teaching in a school, however, was deemed by them as a profession lack of potential prospects. They thought that for the self-sponsored pre-service teachers, they still had the chance to become a postgraduate and change their direction of development; but for the policy-funded pre-service teachers, they had no choice but to become a school teacher."

Fortunately, as a policy-funded pre-service teacher, Zhen Zhen's determination to become a school teacher seemed not be shaken by her pervious teachers' views. The social value of teaching, to a large degree, held her on the choice of teaching as a career:

"I personally don't agree with my school teachers' ideas. I think the reward of teaching is more than the salary. As the old Chinese saying goes, being a teacher can 'impart knowledge, cultivate people, and have students everywhere'. The respects from students are what I am looking forward to. I think I can realise self-fulfilment and acquire self-affirmation by teaching students at a school. Nowadays, there are still various problems in education in China, which are complained by many people. So, I want to become a good teacher so that I can educate children and make a contribution to change the present education situation."

Study Engagement: Low in Reality but High in Planning

During the first two years of teacher training at Southwest University, Zhen Zhen devoted "not much" in her study. She ascribed her low study engagement to work in the Student Union, contents of the curriculum, and lecturers' nonstandard English pronunciation. However, she planned to study hard in the next two years:

"I think I had spent not much time and energy in study in the last two years. I was doing student work in the Student Union in the first year, which occupied much of my study time. And we don't have practical courses, such as mandarin, calligraphy and teaching skills, for the first two years. So, most of the courses we took were theoretical and boring because we had to memorise them. What's more, some of the lectures in the university, especially those old professors who may have profound knowledge, have very awkward oral English. That badly affected our interest in English learning at class… Now I have realised that is a problem for my study and I have gradually developed a sense of urgency. As a time-consuming subject, English needs a lot of time and energy to study it well. To become a quality English teacher, I still have much more new knowledge to acquire. So, I will spend more time and energy on study in the next two years at university."

Perceptions about Teaching: High Demand, Low Return

After two years of teacher-training at Southwest University, Zhen Zhen perceived teaching as a profession with increasingly high requirements but still low rewards:

"Students respect teachers with profound knowledge and high professional quality and dislike the others. This forces teachers to learn more and teach well. Due to frequent media exposures of teachers' ethic problems in recent years, the requirement for teaching profession is increased. In previous years, graduates of pre-service teachers were

automatically obtained a teaching certificate without taking exams. But now, they have to pass the exams before receiving the certificate."

"Although the professional demand is increased, the low salary for teachers remains the same. I don't think the low social status for teachers is changed either. It is well known that all adults were once taught by teachers, but not all of them perceive teaching as an admirable job. In current society, people are more or less utilitarian. Most of them want to work in a big company and get a position that can help them earn a lot of money. They don't think teaching as a profession is important or respectable."

5.3.2 The Story of Wen Jing

Wen Jing was a second-year policy-funded pre-service teacher at Southwest University. She was majoring in Chemistry Education. After graduation from university, she was going to become a Chemistry teacher at a high school. However, she chose to become a teacher by chance.

Career-choice Motivation: Others' Suggestion and Job Advantages

Wen Jing did not decide about her future career when she was at school. When it came to choose a major on the University Application Form, she rashly made the decision to become a school Chemistry teacher. Her career-choice motivation was influenced by the suggestion from others and the advantages of teaching as a career for females:

"When I was studying at school, I had different dreams for my future career, such as becoming a doctor, a nurse, a scientist, etc. However, I was not against becoming a teacher. After graduated from high school, we had to choose a major at university on the University Application Form. One day I was invited by my best friend to go to her home for dinner. I accepted her invitation and arrived at her place a little bit early. When I entered her house, I saw she was filling the University Application Form. Her father was standing beside her and giving suggestions to her. We chatted for a while about which major and university we should choose. Her father introduced Southwest University to us, and then required us to read carefully about the Government-Funded Teacher Education Policy. Finally, her father asked if she would like to become a teacher. She said if I chose a teacher-training programme, she would choose the same programme too."

"We were very good friends and we cherished our friendship very much. If we studied at the same university, we were able to help each other and keep our friendship. Moreover, I thought teaching as a career suited females well. It was a comparatively easy job with long vacations. Teachers were able to take care of their families because they could come back home once they completed several classes at a school. So, both of us chose the major of Chemistry Education at Southwest University on the application form. Luckily, we were both accepted by the university, and now become policy-funded pre-service teachers."

Low Level of Study Engagement

As a policy-funded pre-service teacher, Wen Jing had "contradictory ideas" about what she should learn during the two years of study at Southwest University. The sense of restriction exerted by the Government-Funded Teacher Education Policy had negative effects on her study engagement in teacher-training:

"I have been a policy-funded pre-service teacher for almost two years by now. Ever since I started my university study, I have contradictory ideas from time to time about what I should learn at university, which badly impacts my study engagement. Sometimes, I hold the idea that I just need to do things related to teaching at university because I am bound to become a teacher after graduation according to the policy and the contract we made before attending university. Therefore, when I have free time to do a part-time job, I think to myself: 'In any case, I will become a school teacher in the future, so there is no use to do other part-time jobs except tutoring.' When it comes to choose an extracurricular programme, I always choose the 'Teaching Skills Competition' for the same reason. Moreover, most of the courses I chose are related to school curriculum and pedagogy, which equip me with knowledge and skills for becoming a teacher. However, sometimes I am thinking that the policy has no restriction on what I should learn at university because I have the right to break the contract by paying off the contractual penalty if I don't want to become a school teacher after graduation. Therefore, I can explore all the possible directions for my future development by experiencing different activities and studying different courses, just like what the undergraduates in other majors do. These contradictory thoughts always haunt me, which make me feel uneasy and unable to fully concentrate on what I am studying."

Perceptions about Teaching as a Career: High Demand, Low Return

After two years of teacher-training at university, Wen Jing perceived teaching as a high challenging but low rewarding career. She held the idea that the One Child Policy in China increased the difficulty of teaching children; however, the salary for new teachers was still low:

> "Nowadays, as a result of the One Child Policy, most students at school are the only child in their family. They are usually regarded as the 'future and hope' of the family and called as 'the little emperor' in the family. Their parents give them whatever they like and seldom punish them even when they make mistakes. These spoiled children at school are usually self-centred, naughty, and lack of study interest. Many of them don't want to study hard and they don't think getting higher education is the only way to become rich and successful. All of these make teaching at school become very difficult. School teachers feel more and more pressures in classroom management. For example, when I was at school, some of my classmates would say bad words behind a teacher's back because the teacher called their names when they broke the discipline by talking with each other while the teacher was delivering a lecture. When a teacher checked our homework carefully and seriously, they would say the teacher was over-controlling, and the whole class would cheer up if that teacher suddenly fell sick."… "I think the salary for school teachers is different from province to province. Generally speaking, for a novice teacher or these who just graduated from university, the salary is very low, which usually just can make ends meet."

5.4 Voices from the Low Policy-Satisfaction Group

5.4.1 The story of Bin Bin

Bin Bin was one of the few male pre-service teachers who majored in Pre-school Education in Southwest University. However, becoming a kindergarten teacher was not his first resort.

Teaching as a Fallback Career Choice

Bin Bin seemed to know almost nothing about Pre-school Education before attending university. His original intention was to study Civil Engineering at university, so he made a lot of preparations in that area when he was at high school. When it came to apply universities and choose majors after graduation from high school, Bin Bin originally put two non-teacher-training universities in his application form:

> "My score in the National College Entrance Examination was around 20 points higher than the basic score required by my home province for national key universities. I thought my score may not be high enough for some national top universities. But at the very beginning, I still insisted on choosing Sichuan University and University of Electronic Science and Technology of China in my application form because they were the top universities I always dreamed of".

However, just a few days before officially submitting his application form, he changed his mind after knowing that there was an additional choice. As son of a relatively poor family in a rural area of Sichuan Province, Bin Bin wanted to release his family financial burden on his university tuition fees by becoming a policy-funded pre-service teacher. The Government-Funded Teacher Education Policy in Southwest University catered for his need and played an important role in his decision to attend the teacher training programme:

> "I got a notice to go back to our high school just five days before submitting the university application form. When we gathered in the school, our school teachers told us there was a preferential admission scheme over other universities for those who wanted to become a policy-funded pre-service teacher in one of the six teacher training universities which were implementing the Government-Funded Teacher Education Policy. I learned that as long as candidates' scores in the National College Entrance Examination reached the requirement set by the policy university, they were recruited as a pre-service teacher with full government funding for four-year undergraduate studies. That was what I really needed. My parents do not earn much though they work hard. I always want to share financial burdens with them. If I join the scheme, I am able to save a large sum of money for my family. I also learned that Southwest University was one of the six policy universities carrying out the scheme and it had a relatively lower entrance score requirement. So, finally, I selected Southwest University and prioritised it by putting it ahead of my previous two universities in my application form."

In December 2012, Bin Bin was admitted into Southwest University. He was "surprised" when he knew Pre-school Education was the major that he was going to study at Southwest University:

> "I think my study of Pre-school Education is a pure 'accident' and I felt surprised when I first knew it was my major at university. I was a science student at high school and my original goal was to become an engineer. So, the majors I chose on my application form

to Southwest University were primarily related to science and technology. Pre-school Education was actually the last major I listed on the form. Unfortunately, because my college entrance exam score failed to reach the requirement of science or technology teacher preparation programmes in Southwest University, I was registered in the programme of Pre-school Teacher Education, which had a relatively low requirement for the score due to its difficulty to recruit students."

High Study Engagement Due to External Factors

During the two years of undergraduate study, Bin Bin had a generally high level of study engagement. However, it was the heavy work load that forced him to work hard and his concentration on study was influenced by curriculum contents and teacher's teaching style:

"I think I devote a lot into my undergraduate study and work hard to deal with heavy work load. I thought there was a lot of self-study time at university, but after I attended university I realise I was wrong. I have over 50 classes per week in this semester, and the work load required by the courses is so heavy and tight that I almost have no time for self-study." … "I was a science student back at high school, so I feel the liberal arts courses in university are boring and hard to understand. Sometimes I tried to listen to them carefully, but only to find them meaningless. However, if the courses are something related to science or if the lecturers' teaching is interesting, I will concentrate on these courses highly. I estimate that among the university teachers, about 70 percent of them are talented in teaching. The others' lectures are boring. You may find them use traditional teaching methods for the whole class, such as writing on the backboard by chalks, reading from text books, having nothing creative to teach, etc."

Perceptions about Teaching in Kindergarten: High Demand and Low Reward

After two years of study on Pre-school Education at Southwest University, Bin Bin knew much more about teaching in kindergarten. He perceived kindergarten teaching as a high demanding and low rewarding profession:

"Before taking courses of this major, I thought a kindergarten teacher's job is simply to 'take care of kids' and they can do it well as long as they have common sense. However, my understanding on this profession gradually changed after studying this major at university, especially after finishing courses on psychology in pre-school education."

"Now, I realise the importance of kindergarten teachers and the difficulties to teach at a kindergarten. Just imagine being surrounded by a group of naughty kids! It is difficult to take care of them, isn't it? Especially when those kids were in the bottom class of kindergarten, crying is a particularly common phenomenon. Once a kid starts to cry, the others will follow! Soothing them one after another is a tough job, which usually makes a kindergarten teacher exhausted. The other difficult but important work includes changing diapers for them, cleaning kids' urine and excrement, and so on. Anyway, as a kindergarten teacher, they have to concentrate on the kids all the times because it is always possible that some of them may bring forth an accident."

"Though teaching kids is tough, treatments for kindergarten teachers are not good. Firstly, the salary for kindergarten teachers is not high; it is the same as or even lower than the payments for primary or secondary school teachers. Secondly, the social status of kindergarten teachers is not high either. Although the government has gradually realised the impotence of kindergarten teachers and implemented some policies to improve their social status, I think kindergarten teachers are still commonly discriminated by people in the society. The reason may be that they do not think highly of teaching at kindergarten due to their lack of knowledge on it or even misunderstanding on it: they tend to think kindergarten teachers are just like babysitters."

Plan for Professional Development: From Kindergarten Teacher to Kindergarten Manager

Facing social dissuasions and considering the difficulties for a male kindergarten teacher, Bin Bin had a plan for his professional development: to become a kindergarten teacher soon after graduation, and finally to establish a kindergarten under his own management:

"My parents felt very disappointed when they knew I majored in Pre-school Education and would become a kindergarten teacher after graduation. Many of my relatives, friends and neighbours simply cannot understand my choice because they think a male to become a kindergarten teacher is just like 'putting fine timber to petty use'. They think I should become an engineer or a doctor since I was a science student at high school." … "I personally do not agree with them. I think pre-school education as a major is very important for the national's development. At the same time, I also know how difficult it is for a man to become a kindergarten teacher. For example, it is inconvenient and even embarrassing for a male kindergarten teacher to do some work which a female teacher may find easy to deal with. Living and teaching in a kindergarten dominated by female

teachers could make the minority male teachers feel isolated or even lonely. The possible psychological problems for male kindergarten teachers are what I deeply concern. Therefore, I think I will do something related to education after graduation, but I will not necessarily become a kindergarten teacher. My plan is firstly to study hard on the major at university, then to teach at a kindergarten after graduation to learn more practical skills, and lastly to realise my goal of establishing my own kindergarten."

5.4.2 The Story of Zhu Min

Zhu Min was a second year policy-funded pre-service teacher studying Chemistry Education at Southwest University, which means she was going to become a school Chemistry teacher after graduation. However, teaching Chemistry at school was not her original plan. Her teaching career choice motivation was a mix of "fallback career", "others' suggestion" and "job advantages".

"Fallback Career", "Others' Suggestion" and "Job Advantages" as Career-choice Motivations

At the time to decide what to study at university, Zhu Min firstly wanted to choose the major she was most interested in. But after learning about the employment situation for graduates in that major, she became indecisive about her original plan:

"I was interested in architecture design when I was at high school. My original plan was to study Civil Engineering at university. As soon as I knew I got an excellent score in the National College Entrance Examination, I started to gather information about the major of Civil Engineering, especially about the employment situation for graduates in the major. My parents and aunts also helped me to learn more about them. One day, I searched on line over and over again; suddenly I found a piece of astonishing information: After a job interview with a group of graduates majoring in Civil Engineering, the employers would rather give an offer to a male graduate who failed several courses at university than employ an excellent female graduate. It saddened me so much and I felt like being punched on the head. I asked myself: 'Should I give it up?'"

At the same time, Zhu Min's plan to become a female civil engineer was disapproved by her parents and other relatives. They suggested her to consider other majors:

> "Almost all my family members told me it was not a good idea for me to study Civil Engineering. My parents said civil engineers had to work at a construction site, and after completing work at one site they had to walk along with the construction team to work at another new site. My aunt cited some examples of her friends who were civil engineers to support my parents' idea. They concluded that the work without a stable living place was not suitable for a female and advised me to become a doctor or a teacher."

In Zhu min's mind, teaching as a career had many advantages over being a doctor, such as "easy and interesting job", "long holidays" and "respects from students and parents":

> "By comparison, I think teaching is better than practising medicine because being a teacher has many unique advantages. I think teaching is a relatively easy job. My aunt is a school teacher. Every time when I visited her, she was sitting in her office at ease and she looked very free. Meanwhile, the summer holiday and the winter holiday for teachers every year are really long and the teachers are still paid when they enjoy these holidays. Even during schooling periods, I think teaching different children can enrich teachers' life. You see, no two students are the same and they have different ideas every day. Teaching them will make life full of fun. And school teachers will be respected by both students and their parents if they teach the students well. Just imaging the scenario that students visit their teachers during these holidays! The teachers must enjoy it very much. "

Influenced by her family members' advice and attracted by the advantages of teaching, Zhu Min finally decided to change her mind and take her family members' suggestions. She selected the major of Chemistry Education as her first choice on the university application form:

> "At last, I decided to take my parents' suggestion to become a teacher. Anyway, parents will never harm their own children, won't they? There was a column at the top of the University Application Form for selecting national key teacher-training universities. It was an additional chance for choosing national key universities, but if it was filled the candidates may lose the chance to go to other comprehensive universities. I didn't want to waste it. So, I filled that column with the major of Chemistry Education at Southwest University. And luckily, my application was approved and I was admitted as a policy-funded pre-service teacher."

Zhu Min complemented that the Government-Funded Teacher Education Policy had slightly influenced her choice of the major:

"I knew all the policy terms before filling my University Application Form. I think the policy, what to say, had a little influence on my choice of the major. I thought it restricted the candidates too much. But the term stipulating that we have to come back to our home province to teach was consistent with my plan. I can visit my parents only on long holidays if I teach in other province. Teaching at a school close to my family, however, will make visiting my parents much easier and more convenient."

Low Level of Study Engagement at University

During the two years of university study, Zhu Min had a low level of study engagement in the teacher-training programmes. She attributed her lack of motivation to study at university to three aspects: no pressure for job hunting after graduation, lack of ability for self-study and easy-to-pass university examinations:

"I don't think I spent a lot of time in my study in the past two years. Anyway, this is just the second year of my university study and I just begin to learn some specialised courses and knowledge in my major. For some practical courses on teaching skills, we may not study them until the third year. I think I should prepare for these practical courses in advance, but I haven't done any. Actually I haven't started it yet. I spend most of my time on doing other things, for example, doing social activities, surfing the internet, and so on. To be honest, I don't know exactly what I have done every day. Sometimes, I feel time flies! I thought I just entered the university, but it is the end of my second year at university. I don't know what I spend my time on every day. I just feel I lack of time."

"I don't think I have a strong motivation for study either. Maybe the only time when I feel I need to study hard is the last month of each semester because we have to prepare for term examinations. I think there are several reasons. Firstly, I estimate it will be easy for me to find a teaching job after graduation. At least, I don't need to worry about job hunting. You see, as the policy-funded pre-service teachers, we feel no pressure for job hunting because the policy guarantees that every one of us can get a teaching job after graduation. So, I don't think I need to study hard at university since teaching jobs are there waiting for me."

"Secondly, after experiencing the intense pressure in high school studies and the fierce competition in the National College Entrance Examination, we were suddenly placed in university where no people look over our study. This is typical Chinese education system,

isn't it? But I don't know what to study and I feel very lazy in such a free environment at university. You see, from primary to senior high school education, students do exactly what teachers tell them to do. After school, students are still busy with finishing homework given by the teachers. Many of them usually go back to the classroom for self-study after school. Teachers will even ask their students to pay attention when exams are coming. In other words, we are always monitored by teachers at school. However, things are totally different when we come into universities. No teachers monitor us and we are so free. Unlike what we did before, we do not need to go to classes every day; we only go there if there are lectures. After class, we spend most of our free time on relaxing in our dormitories, hanging out together for shopping, watching soap opera series on the internet, etc."

"Well, I think the only time when I take time to study hard and do lots of reading is the last month of a semester because I have to pass the final examinations. It is well known that, as long as you have made a sudden and intense preparation in the last month of a university semester, you can get almost the same score in the final examinations as others who study hard for the whole semester. Who would like to study hard during non-examination periods of time at university? As far as I know, most undergraduates would like to make an intense study at the last moment just for passing the final exams. That's a 'common sense'."

Perceptions about School Teaching: A High Demanding and Low Return Career

After two years of teacher-training at Southwest University, Zhu Min perceived school teaching as a high demanding and low rewarding career:

"I think teaching as a career has a high requirement for teachers. Teachers not only impart knowledge into students, but also set themselves as an example of good citizens for students. So, a qualified teacher must command a large number of knowledge and have the virtue of patience. Teachers should have the ability to control themselves to follow the moral requirements of teaching profession. As for the treatment for teachers, I think it is not good. Although teachers can get respects from some students, their salary is low compared with other jobs in the society. Moreover, I don't think people in our society respect teachers as much as they did before. This may due to more and more negative news about teachers nowadays: some teachers took bribes from parents who wanted to

send their children to good schools, some male teachers developed sex relationship with their female students. The list goes on and on…"

Summary

These narrative stories of seven policy-funded pre-service teachers revealed details of "the complex, personal, and situated nature" of pre-service teachers' decision making process to choose teaching as a future career (Thomson et al., 2012, p. 332), and showed multiple factors that could influence pre-service teachers' study engagement in teacher-training programmes.

The six main types of career-choice motivation that were analysed in the quantitative data did appear in the narrative data with the combination of these types differing from one individual to another. However, the meaning of some types of motivation was enriched in the interview. For example, suggestion from important others of the participants, such as parents, friends, and classmates, mainly focused on the practical needs of the society and the job advantages. They seemed to rarely consider participants' personal interest. Another example is the understanding of teacher influence. The existing literature (e.g., Fielstra, 1955; Richards, 1960; Su, 1993; Thornton et al., 2002; Younger et al., 2004) commonly suggested that, for pre-service teachers, their school teachers' influences played a positive role on their choice of teaching profession. However, in our interviews, school teachers' influence on pre-service teachers' career-choice seemed not always as positive as the literature suggested. According to Zhen Zhen's narrative story, previous teachers' influence played a complicated and contradictory role on her choice of teaching. On the one hand, the hardworking, supportive, caring, and responsible Chinese teachers could serve as an encouraging role model for students to follow. On the other hand, due to the relatively low rewards of teaching profession, these school teachers usually had a high expectation for their students' future career development, and hence many of them actually did not want their students to follow their path to become a teacher.

Meanwhile, various factors, such as curriculum contents, teaching styles, evaluation system, personal interest in teaching, and workload, were reported by participants (e.g., Zhu Min and Bin Bin) as reasons for their relatively low study engagement in teacher-training programmes. Moreover, some policy terms, such as "binding teaching services" and "job guarantee", appeared to have potentially negative impacts on study engagement of some policy-funded

pre-service teachers, but the impacts seemed to be mediated by their career-choice motivation. For those (e.g., Zhu Min) who emphasised the extrinsic advantages of the teaching profession, they seemed to have a low study engagement in teacher-training programmes due to lack of pressure for job hunting after graduation. However, for those (e.g., Li Wen and Du Wu) who chose the teaching profession out of personal interest, the policy terms seemed to have no negative impacts on their study engagement because they studied hard in order to find a better teaching position (see discussion in section 6.2.3 of Chapter 6).

Some pre-service teachers (e.g., Wen Jing) were uncertain about their professional interest, and thus they were not sure if the pursuit of a teaching profession was a correct choice for them. Even though they were enrolled in the government-funded teacher-training programmes, they still wanted to experience diversified courses and activities rather than just taking education courses. However, the funding policy made them feel more obliged to focus on courses and activities related to education only. This created a "contradictory idea" which could lower their engagement in learning due to a sense of uncertainty and frustration.

Finally, several problems related to career education at high schools in China were reported in these narrative stories. The first problem is that, when they graduated from high schools, some students (such as Wen Jing and Xiao Fang) had very vague ideas about which university programme they should choose mainly because they did not know which profession could suit them best. These students usually resorted to others' suggestion before making a rush decision. Second, fallback career was cited by many participants (such as Zhu Min, Bin Bin, and Zhen Zhen) as their motivation to choose teaching profession. They eventually gave up their original plans due to "employment situation" (see narrative of Zhu Min) or "financial burden" (see narratives of Bin Bin and Zhen Zhen) and chose the teacher-training programme based on others' suggestion. Unfortunately, they usually ended up with a low level of study engagement (for Zhu Min and Zhen Zhen) or were forced by external pressures to study hard (see Bin Bin) in teacher-training programmes. Third, in line with the quantitative findings, these narrative stories showed that most policy-funded pre-service teachers perceived school teaching as a profession with high demands but low rewards. However, they changed their perceptions about the teaching profession from having superficial knowledge about the profession to a deepened understanding of it during the two-year teacher education (see narratives of Bin Bin and Li Wen). This not only demonstrates the effectiveness of teacher-training programmes, but also shows that those pre-service

teachers did not develop a clear and solid view about their future career when they were at high schools.

As Chinese pre-service teachers are predominantly recruited from high school graduates, these problems could indicate the shortage of career education at high schools. Therefore, it is suggested to implement career education courses at high schools in order to enhance students' awareness of the importance of choosing a proper major/programme at university for their future career, and equip them with necessary knowledge and skills about career development.

CHAPTER 6: DISCUSSION AND CONCLUSION

Introduction

This chapter firstly summarises the findings of the quantitative data analyses completed in Chapter 4. Then, four themes from these findings are discussed: the impacts of the funding policy on Chinese pre-service teachers' career-choice motivation and study engagement, the classification of their career-choice motivation, the relationship between their career-choice motivation and study engagement, and the characteristics of their demographic background, perceptions about teaching profession, and attitudes towards the funding policy. Furthermore, based on the issues found in the study, recommendations are proposed for improving this funding policy, teacher education, and career education in China. Finally, limitations of the present study are analysed, and future studies in this area are suggested to overcome these limitations and refine the findings.

6.1 Summary of Quantitative Findings

The research reported in this thesis considered the potential influence of a new government funding policy on the career choice motivation and study engagement of Chinese students training to be school teachers in China. The aim was to explore if the Government-Funded Teacher Education Policy (GFTEP) impacts career-choice motivation and study engagement of Chinese pre-service teachers, and to give suggestions for improving the policy, as part of this, the research also surveyed Chinese pre-service teachers' demographic profiles, investigated their perceptions about school teaching, and reported their satisfaction with the choice of teaching and with the funding policy.

The demographic data analyses of the 712 participants from three universities in mainland China show that Chinese pre-service teachers are predominantly female and Han people. They are generally young – usually in their early 20s, and most of them come from rural-area families with relatively low income. Further comparative analyses suggest the funding policy increases the proportion of ethnic students: there were a higher proportion of students with ethnic minority background in the policy-funded group than those in the self-sponsored group. Self-funded students are more likely to have a rural and poor family background than those funded by the policy, while the policy-funded students acquired higher college entrance scores and are more determined to become a school teacher than the self-funded students.

Findings were derived from a questionnaire with five sections completed by the policy-funded pre-service teachers (PFPTs) and the self-sponsored pre-service teachers (SSPTs). Scales within the questionnaire were first analysed to determine the factors underlying the students' responses. Such analyses suggested that Chinese pre-service teachers' career-choice motivation could be categorised into six types referred to as (1) *Teacher Influence*, (2) *Job Advantages* (consistent with theories of extrinsic motivation), (3) *Social Value* (consistent with theories of altruistic motivation), (4) *Personal Interest* (consistent with theories of intrinsic motivation), (5) *Others' Suggestion*, and (6) *Fallback Career*. These factors showed good psychometric qualities, arguing for their usefulness in considering motivation types within this Chinese student population. Given the evidence for the potential existence of these six types of career-choice motivation factors underlying the responses of the students, these were ranked in terms of importance which was derived from overall response codes. The responses of the students suggest that *Teacher Influence* was, overall, the highest rated career-choice factor, with *Fallback Career* being, overall, the least rated. The extrinsic motivation factors related to *Job Advantages* was rated second, and the altruistic motivation factor related to *Social Value* was rated third. *Personal Interest* associated with intrinsic motivation was overall rated forth, and *Others' Suggestion* fifth important.

Similar factor analyses of the Chinese pre-service teachers' responses to the study engagement questionnaire sub-section argued for two dimensions: *Persistence* and *Enthusiasm*. Comparisons of these aspects of study engagement with the six types of career-choice motivation indicated that *Social Value* and *Personal Interest* were both positively correlated with Chinese pre-service teachers' study engagement in teacher-training programmes, with this relationship been found for *Persistence* and *Enthusiasm* after controlling for the other motivation factors. Motivation factors of *Others' Suggestion* and *Fallback Career* were also positively related to engagement, but this relationship focussed on the *Persistence* factor. *Job Advantages* was found to be negatively related to the *persistence* factor. Despite *Teacher Influence* been rated the highest motivation factor by the students, this was not related to study engagement.

Analyses also identified factors that influenced motivation and engagement dimensions. In the first set of analyses, demographic variables were investigated as potential factors that might influence the career-choice motivation and study engagement of the policy-funded pre-service teachers. The findings suggest that gender was related to differences in all motivation factors, except for *Others' Suggestion*, and it was also related to the *Persistence* engagement

factor. Ethnicity was related to *Job Advantages* and *Fallback Career* but not engagement. Home region and family income were both only related to *Job Advantages*, but only home region was related to engagement (both *Persistence* and *Enthusiasm*). Year of study was related to motivation aspects of *Teacher Influence*, *Job Advantages* and *Social Value*, but was not related to engagement. College entrance exam scores were not related to either motivation or engagement factors.

The influence of the policy was then investigated by contrasting motivation and engagement scores across the two groups of student: the policy-funded students versus the self-funding students in the study. Overall, the policy-funded pre-service teachers were found to report significantly higher *Personal Interest* motivation than that of the self-sponsored pre-service teachers, but there were no significant difference in the other five types of career-choice motivation or the study engagement factors. Although these null results need to be treated with caution, they do argue against negative impacts on motivation and engagement from the restrictive aspects of the policy. The results also argued for the effects of the funding policy on *Personal Interest* to be relatively independent of the impact of the demographic variables measured in this study, although year of study shows some evidence of a potential interaction effect. These analyses argue for lower *Personal Interest* motivation in the last year of study compared to the first year within the policy funded students; indeed, final year *Personal Interest* motivation was almost identical for the policy final year students and those final year students in one of the two non-policy universities. This potential interaction between funded group and year of study also emerged for study engagement scores, with self-funding students in their final year showing higher levels of study engagement than the policy funded students, though this effect seems to be restricted to just one of the two non-policy universities.

Overall, the policy-funded pre-service teachers perceive school teaching as a high-demand but low-reward profession. They also sometimes seemed to be confronted with disagreements within society about choosing teaching. However, they seem to be moderately satisfied with the choice of becoming a school teacher.

Finally, the responses from the policy satisfaction scale were analysed based on the responses of the policy-funded pre-service teachers. The analyses suggested two satisfaction factors: *Satisfaction with Encouraging Terms* and *Satisfaction with Restrictive Terms*. In addition, cluster analyses suggested that the policy-funded students could be clustered into three

groups: a *High Satisfaction* group, a *Low Satisfaction* group, and a *Medium Satisfaction* group. These groups differed in their scores on the scales derived from the questionnaire. Overall, the *High Satisfaction* group showed the higher motivation scores on all scales except for *Fallback Career* where the *Low Satisfaction* group produced the higher scores; with the *Medium Satisfaction* group typically falling between the other two satisfaction groups. Similar patterns were found for both the study engagement factors, the perception about teaching factors, and the decision to teach factors, with the *High Satisfaction* group generally producing higher scores than the *Low Satisfaction* group. For the study engagement factors, the *Medium Satisfaction* group was more like the *Low Satisfaction* group on the *Persistence* factor. For perceptions about teaching, the *Medium Satisfaction* group was more similar to the *High Satisfaction* group on the *Difficulty* factor and has more resemblance to the *Low Satisfaction* group on the *Salary* factor. Moreover, for the decision to teach factors, all the three satisfaction groups produced similar scores on the *Social Dissuasion* factor.

6.2 Discussion One: Main Findings to the Overarching Research Question and Implications

This section discusses the main findings to the overarching research question about whether the funding policy impacts career-choice motivation and study engagement of Chinese pre-service teachers. It firstly discusses the finding that, overall, there is no negative impact of the funding policy on career-choice motivation of Chinese pre-service teachers and its implications. This is followed by the discussion of another finding which shows, overall, no negative impact of the policy on their study engagement and its implications. Then, this section proposes a theoretical explanation of the two main findings from the perspective of the Expectancy-Value theory, and uses specific narrative stories from the seven policy-funded pre-service teachers to further argue for this explanation. Finally, this section discusses the possible undermining effects of the funding policy. It applies the Undermining Effect of Extrinsic Reward theory to discuss the potential undermining effect of the funding policy on intrinsic career-choice motivation of policy-funded pre-service teachers, and then it discusses the possible undermining effect of the policy on their study engagement.

6.2.1 No Negative Impacts of the Funding Policy on Career-Choice Motivation of Chinese Pre-service Teachers

The present study argues against any negative impacts of the funding policy on career-choice motivation of Chinese pre-service teachers as a whole. This finding is summarised from two quantitative results as follows.

Firstly, there was no significant difference in the rating for five types of career-choice motivation – *Teacher Influence, Job Advantages (Extrinsic Motivation), Social Value (Altruistic Motivation), Others' Suggestion,* and *Fallback Career* – between the policy-funded pre-service teachers and their self-sponsored counterparts. The result means that the Government-Funded Teacher Education Policy has no significant impacts on these five types of motivation for pre-service teachers to choose a teaching profession. It therefore indicates that the encouraging terms of the funding policy, such as "no-fee teacher education", "guaranteed employment", "professional postgraduate study opportunity", and "availability of school management posts", do not attract significantly more students who emphasise job advantages of the teaching profession or choose teaching as a fallback career into the policy-funded teaching programmes. This result could be encouraging as existing studies (e.g., Bruinsma & Jansen, 2010; Sinclair et al., 2006) suggest that extrinsic career choice motivation and choosing teaching as a fallback career would be related with negative teaching experience and teacher attrition. Without such maladaptive motivations strongly related to the choice of a teaching profession, the policy-funded pre-service teachers are likely to become in-service teachers who would like to teach for a long period so that the aim of the funding policy to build a stable teaching force could be achieved.

Secondly, the only type of career-choice motivation that the policy-funded pre-service teachers rated significantly higher than their self-sponsored counterparts was *Personal Interest (Intrinsic Motivation).* Further analyses showed that the main effect of the funding policy on *Personal Interest (Intrinsic Motivation)* of Chinese pre-service teachers was independent of the impacts of their demographic background. This indicates that the Government-Funded Teacher Education Policy attracts students with significantly higher personal interest in a teaching profession into teacher-training programmes. As suggested by the existing literature (e.g., Canrinus & Fokkens-Bruinsma, 2014; Hauge et al., 1997; Malmberg, 2006), the intrinsic career-choice motives are positively related with pre-service teachers' future professional development, such as job satisfaction, retention in and

commitment to teaching. Some studies (e.g., Bruinsma & Jansen, 2010) also show that intrinsic motivation is adaptive and positively related to the quality of teacher-training programmes and classroom teaching experience. Therefore, the result of the present study could indicate a positive sign that the policy-funded pre-service teachers, although facing many restrictions stated in the Government-Funded Teacher Education Policy, are likely to become high quality teachers who would like to stay in the teaching profession for a longer time than the self-funded pre-service teachers. It in turn suggests that the goals of the Government-Funded Teacher Education Policy, such as to build a group of high quality teachers willing to teach for ten years, could be achieved.

6.2.2 No Negative Impacts of the Funding Policy on Study Engagement of Chinese Pre-service Teachers

The study engagement of Chinese pre-service teachers in the present study was categorised into two dimensions – *Persistence* and *Enthusiasm*. No significant difference was found between the policy-funded and the self-sponsored pre-service teachers in the two dimensions and their total study engagement levels in teacher-training programmes. This finding seems not in line with the findings of two existing studies: one study reported a lower level of study engagement for the policy-funded pre-service teachers than other undergraduates (Chen, 2013), while another study (Zhao, 2013) showed that the policy-funded pre-service teachers had a higher level of study engagement than those funded by themselves. The result of the present study could be more reliable for two reasons. Firstly, this study has a larger sample of participants (N=712) than the two previous studies (N=439 and N=459 respectively). Secondly, it conducts an exploratory factor analysis which produces dimensions suitable for measuring engagement in a Chinese context, while the other two studies directly applied the original questionnaires within Chinese students which may impact their reliability and validity.

The finding from the present study suggests that, overall, there is no negative impacts of the funding policy on study engagement of pre-service teachers funded by the policy. Furthermore, except for "year of study", no interaction effects are found between the demographic variables and the funding policy on study engagement. These results mean that the policy terms, which relieve the policy-funded pre-service teachers from job-hunting and exams by guaranteeing them "a teaching job" and forbidding them from becoming "academic postgraduate students", do not significantly and negatively impact their study engagement in

teacher-training programmes. This could be an encouraging result as findings of the existing literature suggest that college students' study engagement is positively correlated with their academic performance and achievement (e.g., Bakker et al., 2015; Schaufeli, Martínez, et al., 2002), and that engaged teachers are more likely to provoke students' interest in learning and to achieve educational goals (Hakanen et al., 2006). Therefore, the result could be regarded as a positive signal that the purpose of the funding policy, to build a high quality teaching force, is likely to be achieved.

6.2.3 Applying the Expectancy-Value Theory and the Qualitative Data to Explain the Main Findings

The quantitative results of the current study showed that the Government-Funded Teacher Education Policy had no negative impact on career-choice motivation or study engagement of Chinese pre-service teachers. These main findings were concluded from two quantitative results. Firstly, there was no significant difference in five of the six types of career-choice motivation and the two dimensions of study engagement between the policy-funded and the self-sponsored pre-service teachers. Secondly, the policy-funded pre-service teachers had a significantly higher intrinsic motivation than their self-sponsored counterparts. The current section discusses one possible explanation for these major findings based on the Expectancy-Value theory.

According to the Expectancy-Value theory (e.g., Eccles, 1987, 2005, 2009; Eccles & Wigfield, 1995; Meece et al., 1990; Wigfield & Eccles, 1992, 2000), individuals' achievement-oriented choices and performance are directly impacted by their expectancies for success in completing a task and the value they attach to the specific task. "Expectancies for success" means individuals' beliefs on how well they can perform on an upcoming task currently or in the future, and the "task-specific value" refers to the qualities of one task and how those qualities impact individuals' desire to do the task. In the funding policy, the encouraging terms, such as "no-fee education", "guaranteed employment", "professional postgraduate study opportunity", and "availability of school management jobs", could add additional values for pre-service teachers to choose a teaching profession; while the restrictive terms, such as "10-year teaching service", "two-year rural school service", "no opportunity for academic postgraduate study", and "home province teaching", could increase the difficulty of teaching and confine future professional development for some pre-service teachers, thus damp their expectancies for success in teaching profession. These two groups

of policy terms, therefore, could have potentially opposite impacts on the choice of a teaching profession and study engagement of pre-service teachers. These opposite impacts might be counteracted with each other for the whole policy-funded pre-service teachers, and hence lead to "no negative impacts" on their career-choice motivation and study engagement.

This theoretical explanation has been examined by analysing the relative abstracts (see the following sections from 6.2.3.1 to 6.2.3.4 in this chapter) from the qualitative narratives of the seven policy-funded pre-service teachers (see Chapter 5 for the whole narrative stories). Although these narratives represent only a small number of participants' experiences, they could demonstrate in details how several individuals with different career-choice motivations respond to the complexity of different policy terms' impacts on their choice of teaching profession and their study engagement. To be specific, as the following four sections (from section 6.2.3.1 to section 6.2.3.4) show, for those with extrinsic career-choice motivation, the impacts of encouraging and restrictive policy terms on their choice of a teaching profession seem to be opposite (positive vs. negative), but these two groups of policy terms' impacts on their study engagement appear to be both negative. For those with intrinsic career-choice motivation, the encouraging terms could have positive impacts on their teaching choice and have no negative impacts on their study engagement; while the restrictive terms seem to have no negative impacts on either their choice of teaching profession or study engagement. When drawing together these diversified impacts of the two groups of policy terms, the result could generally support the theoretical explanation that different impacts of different policy terms may be offset or counterbalanced for the whole policy-funded pre-service teachers, and hence echoes the quantitative result that the funding policy has no negative impacts on career-choice motivation and study engagement of Chinese pre-service teachers.

6.2.3.1 Impacts of Encouraging Policy Terms on the Choice of Teaching Profession

For those with a poor family background and an extrinsic career-choice motivation, the possibility to choose a teaching profession could be increased by the encouraging policy terms. The three participants, Da Wu, Bin Bin, and Zhen Zhen, were all from a rural area and poverty-stricken families with family income between 2000 to 3000 RMB per month, and each of them emphasised *Job Advantages* as one of their motivations to choose teaching. The financial and employment priorities from the policy catered for their need and reassured their

decision to become a teacher. As Da Wu said in his narrative, "I think the stipulations of the policy are really good and appropriate for me...The policy just assures I will be a teacher anyway." Bin Bin also stated: "My parents do not earn much though they work hard. I always want to share financial burdens with them. If I join the scheme, I am able to save a large sum of money for my family."

As a daughter of a poor family, Zhen Zhen admitted: "I personally don't want my parents to spend too much money on my education." When an unexpected car accident happened to her father which caused expensive medical expenditures, her whole family was under great stress. When it came to pay university fees, she said "I just didn't want to ask them [her family] for tuition fees to avoid adding any more pressure on them." Then, she learned about the funding policy and knew undergraduates enrolling in teaching programmes of several universities were exempted from paying fees. She was obviously relieved by the benefits provided by the policy and decided to choose the teaching programmes: "That was great news for me because I can save my parents money if I enrol in it." Therefore, she made up her mind and "chose the major of English Education in the application form to Southwest University." Her evaluation of the value to become a teacher could be increased, and her decision to teach confirmed.

Moreover, the encouraging policy terms seemed to consolidate the choice of teaching for those with a rich family background and an intrinsic career-choice motivation. This can be seen from Xiao Fang's story. Xiao Fang came from a relatively richer family (4000RMB/month as family income) in a coastal area and she had a personal interest in teaching. When it came to choose a major at university, the impact of the encouraging policy terms seemed to strengthen her choice of a teaching programme as she said in her narrative: "…Under current situation of difficulty in job-hunting, the policy term that guaranteed a teaching job for graduates of policy-funded pre-service teachers was very attractive. So, I finally took their suggestion and put Chemistry Education as the major at Southwest University on the application form."

6.2.3.2 Impacts of Encouraging Policy Terms on Study Engagement

These encouraging policy terms, although adding additional values to choose a teaching profession, do not necessarily improve pre-service teachers' study engagement. The impacts of these policy terms on pre-service teachers' study engagement could be mediated by

individuals' career-choice motivation and career aspiration. This can be seen from the narrative stories from Zhu Min, Da Wu, and Li Wen.

Both Zhu Min and Da Wu emphasised *Job Advantages* as one of their teaching career choice motivations, and the encouraging policy terms seemed to negatively impact their study engagement in teacher-training programmes. When analysing the reasons for her low level of study engagement, Zhu Min firstly cited the impacts brought along by the policy term which guaranteed employment: "I estimate it will be easy for me to find a teaching job after graduation. At least, I don't need to worry about job hunting. …. As the policy-funded pre-service teachers, we feel no pressure for job hunting because the policy guarantees that every one of us can get a teaching job after graduation. So, I don't think I need to study hard at university since teaching jobs are there waiting for me." Moreover, these encouraging policy terms which exempted fees and guaranteed jobs for pre-service teachers could reduce some students' career aspiration, which in turn could decrease their study engagement. This was indicated by the story from Da Wu, who narrated: "When I have no class to take…, I will think about whether to study or not. The decision will depend on whether I can pass the final exam with satisfactory marks. If I think I can, then I will go for a relaxation. I think there is no need for me to work very hard at university. …Sometimes I persuade myself to stop studying as long as I can pass the final exam."

Different from Zhu Min and Da Wu, Li Wen had a strong intrinsic motivation to choose the teaching profession, and she had a high aspiration for her future career development. The encouraging terms seemed to have no negative impacts on her study. The view that "the policy-funded pre-service teachers have no pressure for job hunting as the government will assign them a teaching post after their graduation" was described as "a partial opinion" or "a kind of misunderstanding" by Li Wen in her interview. Although she did not think she studied hard enough, she negated any side effect of the funding policy on her study engagement by citing her personal experience: "I am a policy-funded pre-service teacher and I feel big pressure for finding a good teaching job in a kindergarten." She further explained that "only those who failed to find a teaching job by themselves in all mutual selection job fairs will be assigned by the government to the schools where teachers are in urgent need"; but for pre-service teachers like Li Wen who "want to become a teacher at a good school in a better city", they simply cannot "waste time at university and wait for the government" to assign them to "a poor school in a poor area". This was further illustrated by Li Wen in her narrative: "I have to think about whether I have the capacity required by that school in Chengdu [capital city of Sichuan

Province], and if not yet, how can I improve and develop myself through hard work at university."

6.2.3.3 Impacts of Restrictive Policy Terms on the Choice of Teaching Profession

The restrictive policy terms, such as "10-year teaching service" and "two-year rural teaching service", could add difficulties to the task of teaching profession; and other restrictive terms, such as "no opportunity for academic postgraduate study" and "home-province teaching", could set restrictions on pursuing teaching profession. As a result, these restrictive policy terms are likely to reduce individuals' expectancies for success in teaching profession. According to the Expectancy-Value theory, this could decrease the possibility for people to choose teaching as their future career. This effect, as the following analyses on the qualitative narratives indicated, could be confined to pre-service teachers with extrinsic career-choice motivation (see stories from Wen Jing and Zhu Min). For those with intrinsic motivation to teach, however, these restrictive terms could have no negative impacts on their choice of teaching (see Li Wen's story).

Both Wen Jing and Zhu Min had extrinsic motivation to choose a teaching profession. Influenced by friends' advice and job advantages, Wen Jing chose a teaching programme at a policy university without deliberating the requirements of a teaching profession. After attending the teacher training programme, she seemed to be unhappy with the restrictive policy terms which asked her for long-time teaching service, and she even considered about withdrawing from the programme as her narrative said: "sometimes I am thinking that the policy has no restriction on what I should learn at university because I have the right to break the contract by paying off the contractual penalty if I don't want to become a school teacher after graduation. Therefore, I can explore all the possible directions for my future development by experiencing different activities and studying different courses, just like what the undergraduates in other majors do." Additionally, Zhu Min also thought the policy had "a little influence" on his choice of teaching, and he admitted that the restrictive terms "restricted the candidate too much".

Motivated by personal interest to choose teaching, Li Wen had a totally different story about the influence of the restrictive policy terms on her choice of teaching profession. It seemed that these restrictive terms did not hinder her from pursuing teaching profession, as she argued in

her narrative that "if you want to become a teacher, it goes without doubt that the policy will help you a lot." For the term which required for 10-year teaching service, she commented: "For a person like me who wants to teach for 20 years or even for the whole life, what's the difference of teaching for at least ten years?" Again, for the term asking graduates to come back to home province for teaching service, she said: "For me, that is not a problem. I think there is no big difference between my home province Sichuan and other provinces. And I like to teach in Sichuan Province although it is located in southwest part of China."

6.2.3.4 Impacts of Restrictive Policy Terms on Study Engagement

The restrictive policy terms, as discussed above, could reduce students' expectancies for success, which may negatively impact students' study engagement in teacher-training programmes according to the Expectancy-Value theory. However, the qualitative data seemed to suggest that these negative impacts were mainly confined to those with extrinsic career-choice motivation (see narrative stories from Wen Jing and Da Wu). For those with intrinsic motivation to teach, the restrictive terms could have no negative impacts on their study engagement (see Li Wen' story).

Wen Jing was motivated by others' suggestion and job advantages to choose teaching profession. During teacher training, the restrictive policy terms seemed to negatively impact her study engagement by imposing "contradictory ideas" on her. She sometimes refused to engage in activities outside teacher-training because the contract required her to be a teacher for a long time after graduation. As she stated in her narrative: "When I have free time to do a part-time job, I think to myself: 'In any case, I will become a school teacher in the future, so there is no use to do other part-time jobs except tutoring.' When it comes to choose an extracurricular programme, I always choose the 'Teaching Skills Competition' for the same reason." However, sometimes she had an opposite idea – she believed that she could "break the contract by paying off the contractual penalty" so as to "explore all the possible directions for future development by experiencing different activities and studying different courses, just like what the undergraduates in other majors do." These contradictory ideas make her feel "uneasy and unable to fully concentrate", and consequently, she had a low level of study engagement in teacher training. Similarly, Da Wu also was attracted by job advantages to choose a teaching profession, and the binding teaching service terms seemed to discourage him from hard study. Being bound to become a teacher, Da Wu believed that "no need for me to work very hard at

university" and he did not care about earning "honours" or "high exam scores". He would stop working as long as he thought he was able to pass the exam.

However, as for Li Wen who had a strong intrinsic motivation to choose teaching, these restrictive terms, such as "10-year teaching service" and "coming back to home province to teach", could be compatible with her career path and seemed to have no negative impacts on her study engagement. She believed that "if you want to become a teacher, it goes without doubt that the policy will help you a lot." Her high career aspiration appeared to push her to aim high and study hard regardless of what the funding policy required.

6.2.4 Applying the Undermining Effect of Extrinsic Reward Theory to Explain Possible Impacts of the Funding Policy on Intrinsic Career-Choice Motivation

As discussed above, overall, the policy-funded pre-service teachers had a significantly higher intrinsic career-choice motivation than their self-sponsored counterparts. However, further comparison between the first-year and the last-year participants demonstrated that, during teacher training at universities, the intrinsic career-choice motivation was on the decline among the policy-funded students, but on the rise among their self-sponsored counterparts. Although the difference in intrinsic motivation between the first-year and the final year students was not statistically significant at the level of .05, the opposite changing trends between the policy-funded and the self-sponsored pre-service teachers could indicate some possible influence from the funding policy. This section is going to discuss this possibility by applying the theory of the Undermining Effect of Extrinsic Reward.

The Undermining Effect of Extrinsic Reward theory describes the phenomenon that those who are offered extrinsic rewards for conducting a task lose some of their initial intrinsic motivation in doing that task (Graham & Weiner, 2012). It is also called "overjustification effect" which similarly proposes that for individuals who are conducting a task or activity without extrinsic rewards, the introduction of extrinsic rewards for doing that task could make the individual feel less interested in the activity once the rewards are no longer available because the behaviour has been overjustified (Akin-Little & Little, 2004; Lepper et al., 1973). The undermining effect of extrinsic reward is more likely to occur if several conditions are met: tangible, expected, and non-contingent rewards, and high initial interest in the task (Graham & Weiner, 2012). These conditions seem to be basically matched with

the encouraging terms of the funding policy. The policy-funded pre-service teachers are all offered with many benefits, such as "tuition-free university education", "job guaranteed", "professional postgraduate study opportunity", and "availability of school management post". As these benefits are all outside of the teaching profession and mainly about money, job, and study opportunities, they belong to extrinsic rewards that are tangible rather than symbolic. Moreover, these extrinsic rewards are expected for candidates once they are accepted into these teaching programmes, and these rewards are not contingent on their academic achievement during university study. Lastly, these pre-service teachers should have some level of interest in their future teaching profession. Therefore, according to the Undermining Effect of Extrinsic Reward theory, the encouraging terms of the Government-Funded Teacher Education Policy could play the role of extrinsic rewards to reduce intrinsic motivation of pre-service teachers to choose the teaching profession.

Results of the present study could support this theoretical prediction of the Undermining Effect of Extrinsic Reward theory. Although the policy-funded pre-service teachers as a whole had a significantly higher intrinsic career-choice motivation than their self-sponsored counterparts, the intrinsic motivation of the last-year policy-funded students was relatively lower than that of their first-year policy-funded counterparts. On the contrary, the last-year self-sponsored pre-service teachers had a slightly higher intrinsic motivation than their first-year self-sponsored counterparts. These results could suggest the undermining effect of the encouraging policy terms on the policy-funded pre-service teachers' intrinsic career-choice motivation. It is assumed that the four-year teacher training, just as the results of the self-sponsored pre-service teachers demonstrated, could increase pre-service teachers' personal interest in the teaching profession; however, according to the theory of Undermining Effect of Extrinsic Reward, the withdrawal of some extrinsic rewards in the funding policy for the last-year policy-funded pre-service teachers, such as the end of free teacher training and the fulfilment of guaranteed employment for policy-funded graduates, would decrease their intrinsic motivation to choose a teaching profession.

The possible undermining effect of the funding policy on intrinsic career-choice motivation of pre-service teachers discussed above should be cautiously considered for two reasons. Firstly, although the opposite changing trend of intrinsic motivation between the policy-funded and the self-sponsored pre-service teachers during teacher training was demonstrated in graphical displays (see section 4.8.2.2 in Chapter 4), the statistical results showed that the difference of intrinsic career-choice motivation between the first-year and the last-year

policy-funded pre-service teachers was not statistically significant at the .05 level. Moreover, the present study is not longitudinal research, which means the first-year and the last-year pre-service teachers are different participants and other factors might contribute to their difference in intrinsic motivation. Therefore, further studies are suggested to apply longitudinal approaches to explore the changes of intrinsic career-choice motivation for the same group of policy-funded pre-service teachers from their first-year teacher training to their completion of the training programmes, so as to testify whether the funding policy has undermining effects on their intrinsic motivation to choose the teaching profession.

6.2.5 Potential Undermining Effect of the Funding Policy on Study Engagement

The statistical results showed that the policy-funded pre-service teachers had a relatively lower level of study engagement than their self-sponsored counterparts in terms of total engagement and its two dimensions – enthusiasm and persistence. Although these differences in study engagement were not statistically significant at the .05 level, the following three additional results argue for a possible undermining effect of the funding policy on study engagement.

Firstly, according to results of a partial correlation analysis, altruistic and intrinsic career-choice motivations had positive correlations with study engagement. However, the policy-funded pre-service teachers with higher levels of altruistic and intrinsic career-choice motivations turned out to have a lower level of study engagement. Moreover, according to the regression equation: $Y_{\text{study engagement}} = 2.273 + 0.274\ X_{\text{social value}} + 0.093\ X_{\text{others suggestion}} + 0.103\ X_{\text{intrinsic motivation}}$, the mean value of study engagement for the policy-funded pre-service teachers should be 4.473, which is higher than the actual mean value calculated from the data (M=4.400). Finally and most importantly, a statistically significant interaction effect on study engagement was found between "funding source" (policy-funded vs. self-sponsored pre-service teachers) and "year of study" (first-year vs. last-year pre-service teachers). Further analyses demonstrated that last-year policy-funded pre-service teachers had a slightly lower study engagement than the first-year policy-funded pre-service teachers, which was opposite to the last-year self-sponsored pre-service teachers because they had a significantly higher study engagement than the first-year self-sponsored pre-service teachers. This could indicate that, with the increase of their year of study, the policy-funded pre-service teachers do not experience an increase in study engagement but their self-funded counterparts do.

The above results suggest that, although the funding policy has no significantly negative impacts on study engagement of the policy-funded pre-service teachers as a whole, it may fail to enhance their study engagement during teacher training. The reason may be related to the impacts of some terms in the funding policy, which guarantee the policy-funded pre-service teachers an employment but forbid them to become an academic postgraduate student. Such policy terms are likely to reduce the pressure for job hunting and further study, and hence decrease study engagement in teacher-training programmes for pre-service teachers, especially those with high extrinsic career-choice motivation (see discussion in section 6.2.3).

The undermining effect of the funding policy on study engagement, however, should be considered with caution for several reasons. First, the study engagement of the policy-funded students, overall, was not significantly lower than their self-sponsored counterparts. Second, the relatively small exploratory power of the regression equation (R Square = .235, see section 4.5.2 in Chapter 4) could weaken the accuracy of its prediction on the study engagement level. Third, the decline of study engagement could be caused by the decrease of intrinsic motivation. The correlation analysis showed that the intrinsic career-choice motivation was positively related to their study engagement. As the intrinsic motivation of the last-year policy-funded pre-service teachers is decreased due to the undermining effect of extrinsic reward in the funding policy (see discussion in the previous section), their study engagement could decline consequently. Finally, it is difficult for the non-longitudinal design of the current study to directly show the exact undermining effect of the funding policy on pre-service teachers' study engagement. Therefore, future studies are suggested to follow up this group of policy-funded pre-service teachers and compare their changes in study engagement during their four-year teacher training in order to accurately measure the policy's impact on their study engagement.

6.3 Discussion Two: Classification and Ranking of Career-Choice Motivation of Chinese Pre-service Teachers

This section starts with discussing the meanings of the six types of career-choice motivation revealed from previous factor analyses, and the implications according to the ranking Chinese pre-service teachers rated for each of them. This is followed by the discussion of developing a new classification model on teaching career choice motivations, which is based on the compatibility between the six motivation types and two previous classifications. Finally, the career-choice motivation profiles are compared between Chinese pre-service teachers and

their international counterparts, and Maslow's theory of motivation is applied to argue for the finding that social contexts of different countries could impact motivation to teach.

6.3.1 Six Types of Career-Choice Motivation

Six types of career-choice motivation were identified in the present study to explain why Chinese pre-service teachers chose teaching as their future career. To list them by their descending importance order, the six motivation types were *Teacher Influence*, *Job Advantages, Social Value, Personal Interest*, *Others' Suggestion*, and *Fallback Career*.

6.3.1.1 Teacher Influence

The first and most important type of career-choice motivation was called *Teacher Influence*, which meant the positive images of previous school teachers and the encouraging experience they had with them act as one reason for Chinese pre-service teachers to choose a teaching profession. This motivation type was also named as *Prior Teaching and Learning Experience* in the FIT-Choice scale (Watt & Richardson, 2007) which represented similar reasons for choosing a teaching profession.

School teachers' influence was rated as the most important reason for Chinese pre-service teachers to pursue teaching in the present study. The finding is in line with many previous studies which emphasised the importance of school teachers and schooling experience on prospective teachers' choice of teaching (e.g., Adkintomide & Oluwatosin, 2011; Fielstra, 1955; Richards, 1960; Su, 1993; Thornton et al., 2002; Younger et al., 2004). These results similarly suggest that the role played by school teachers has the potential to influence their own students' motivation to choose teaching profession; therefore, school teachers' role should be emphasised in the attempt to attracting more people to the teaching profession.

One previous study reported a different finding that few Chinese pre-service teachers ascribed the influence of teachers as their reasons to pursue teaching (Liu, 2010). However, the Chinese teacher candidates sampled in the study were "35 from an elementary teacher education program at a university in the PRC" (Liu, 2010, p. 60). The relatively small sample size and the focus on one single programme at one university could result in lack of representation of the conclusion. The present study surveyed 712 Chinese prospective teachers from more than ten teacher-training programmes at three universities in P.R. China. The relatively big sample size could increase the representativeness of the findings.

6.3.1.2 Job Advantages

According to the results of component factor analysis (see section 4.3 in Chapter 4), *Job Advantages* as a type of teaching career choice motivation in the present study meant people chose teaching profession due to the attraction of some separable benefits of the job, such as reliable income, stable job, long holidays, and fitting with family responsibilities. It represented a combination of two factors in the FIT-Choice scale, *Job Security* and *Time for Family*, both of which were subordinated to the higher-order factor *Personal Utility Value* (Watt & Richardson, 2007). As suggested by some previous studies (Kyriacou & Benmansour, 1999; Kyriacou & Coulthard, 2000; Sinclair et al., 2006; Williams & Forgasz, 2009; Wong et al., 2014), this type of career-choice motivation could also be called *Extrinsic Motivation* because it emphasised the extrinsic benefits of teaching profession.

Chinese pre-service teachers in the present study reported *Job Advantages* as their second most important type of career-choice motivation. This demonstrates the attractiveness of teaching as a stable profession in Chinese society which is compatible with family life and has long holidays. Some unique features of Chinese society described by Lin et al. (2012) could be applied to explain the current finding: the traditional Chinese culture which stresses teachers' authority; the educational policies which emphasise materialistic benefits; and highly competitive job market. These features could increase the attractiveness of the teaching profession and hence lift the importance of extrinsic motivation to become a teacher.

Additionally, in Hong Kong, extrinsic benefits were rated as the fourth important motivation to choose teaching by Chinese pre-service teachers in a study (Wong et al., 2014). The dissimilar research findings suggest that Chinese pre-service teachers from mainland China and Hong Kong could place different emphases on the extrinsic benefits of the teaching profession when they chose it as their future career. More studies are needed to explore the reasons for this difference.

6.3.1.3 Social Value

As a type of career-choice motivation, *Social Value* meant that prospective teachers chose teaching because they wanted to make contributions to the society and help the youth to develop. Examination of the reduced variables in the present study (see section 4.3 in Chapter 4) indicated that *Social Value* in current study was a combination of three factors in the FIT-

Choice scale: *Shape Future of Children/Adolescents*, *Enhance Social Equity*, and *Make Social Contribution*, all of which were subordinated to the higher-order factor of *Social Utility Value* in the FIT-Choice scale (Watt & Richardson, 2007). It was also called *Altruistic Motivation* by previous studies according to its meaning (Chan, 2006; Wong et al., 2014).

In the present study, Chinese pre-service teachers rated the importance of *Social Value* as the third place among the six motivations to choose teaching profession. The implications of the relatively middle ranking of *Social Value* could be twofold. On the one hand, it could suggest that modern ideas of market economy have potential impacts on Chinese pre-service teachers' career-choice motivation. On the other hand, it indicates that Chinese pre-service teachers still emphasise making altruistic contributions to the future generation when they choose teaching career in current Chinese society.

6.3.1.4 Personal Interest

For individuals who choose teaching profession because they enjoy teaching activities and school environment, such as working with children, enjoying children-centred environment, and having desire to teach, their teaching career choice motivation was called *Personal Interest* in the present study. According to the meaning of the reduced items in present study (see section 4.3 in Chapter 4), *Personal Interest* as a type of career-choice motivation is a combination of two factors – *Intrinsic Career Value* and *Work with Children/Adolescents* – in the FIT-Choice scale (Watt & Richardson, 2007). It was referred to as *Intrinsic Motivation* by some studies (Kyriacou & Coulthard, 2000; Sinclair et al., 2006) which believed that those pre-service teachers were intrinsically motivated to choose teaching.

Among the six types of teaching career choice motivation, *Personal Interest* was rated as the fourth important by Chinese pre-service teachers in the present study. Its ranking fell behind that of *Job Advantages* and *Social Value.* Similar finding was reported in a study in the context of Hong Kong where pre-service teachers ranked their interest in teaching as the third important motivation to choose teaching. The relatively low ranking of the importance of *Personal Interest* in choosing teaching profession is not encouraging as many previous studies suggested it was an adaptive career-choice motivation: pre-service teachers' personal interest in teaching could positively predict their retention in the teaching profession (Hughes & Manuel, 2006; Kyriacou et al., 2003), and it was positively related to their future job satisfaction, teaching skills, and students' learning motivation (Fokkens-Bruinsma &

Canrinus, 2014; Malmberg, 2006). Therefore, it seems very important to do follow-up and longitudinal studies on teaching career development of these Chinese pre-service teachers.

6.3.1.5 Others' Suggestion

Others' Suggestion as a type of career-choice motivation in the current study meant that individuals followed the advice from important others to choose teaching as their future career, such as parents, friends, and classmates. In the FIT-Choice scale, it was named as *Social Influence* by Watt and Richardson (2007). Chinese pre-service teachers in present study reported *Others' Suggestion* as the fifth importance out of the six types of career-choice motivation. This finding is echoed by a previous study which reported that pre-service teachers in Hong Kong rated it as their fifth important reason to choose teaching (Wong et al., 2014). The relatively low ranking of *Others' Suggestion* as a reason to choose teaching could indicate that Chinese pre-service teachers become more independent on making decisions about their career than before when they had very limited autonomy for choosing their own future profession (Li & Niyozov, 2008).

6.3.1.6 Fallback Career

As a type of teaching career choice motivation, *Fallback Career* in the present study, same as in the FIT-Choice scale, meant that people chose a teaching profession due to unavailability of other careers and/or uncertainty about future career. It was rated as the least important type of career-choice motivation by Chinese pre-service teachers in the present study. This finding is consistent with many previous studies (Fokkens-Bruinsma & Canrinus, 2012; Lin et al., 2012; Wong et al., 2014) which similarly reported that pre-service teachers in their contexts placed *Fallback Career* as the least important motivation to choose teaching profession. The relatively unimportant *Fallback Career* as a motivation to choose teaching could be encouraging as it was often found to be maladaptive (König & Rothland, 2012; Lin et al., 2012). However, as a recent study (Wong et al., 2014) showed that *Fallback Career* could be further divided into alternative and provisional subtypes which played different roles, future studies with a longitudinal approach are needed to explore the impacts of choosing teaching as a fallback career on pre-service teachers' professional development.

6.3.2 A New Classification on Career-Choice Motivation

Each of the six types of Chinese pre-service teachers' career-choice motivation has its unique meanings as described above. However, it is difficult to see the whole picture of these diversified motivation types from the separated interpretations. To better understand the relationships among the six motivation types, the present study proposes a new classification model for teachers' career-choice motivation (see Figure 20).

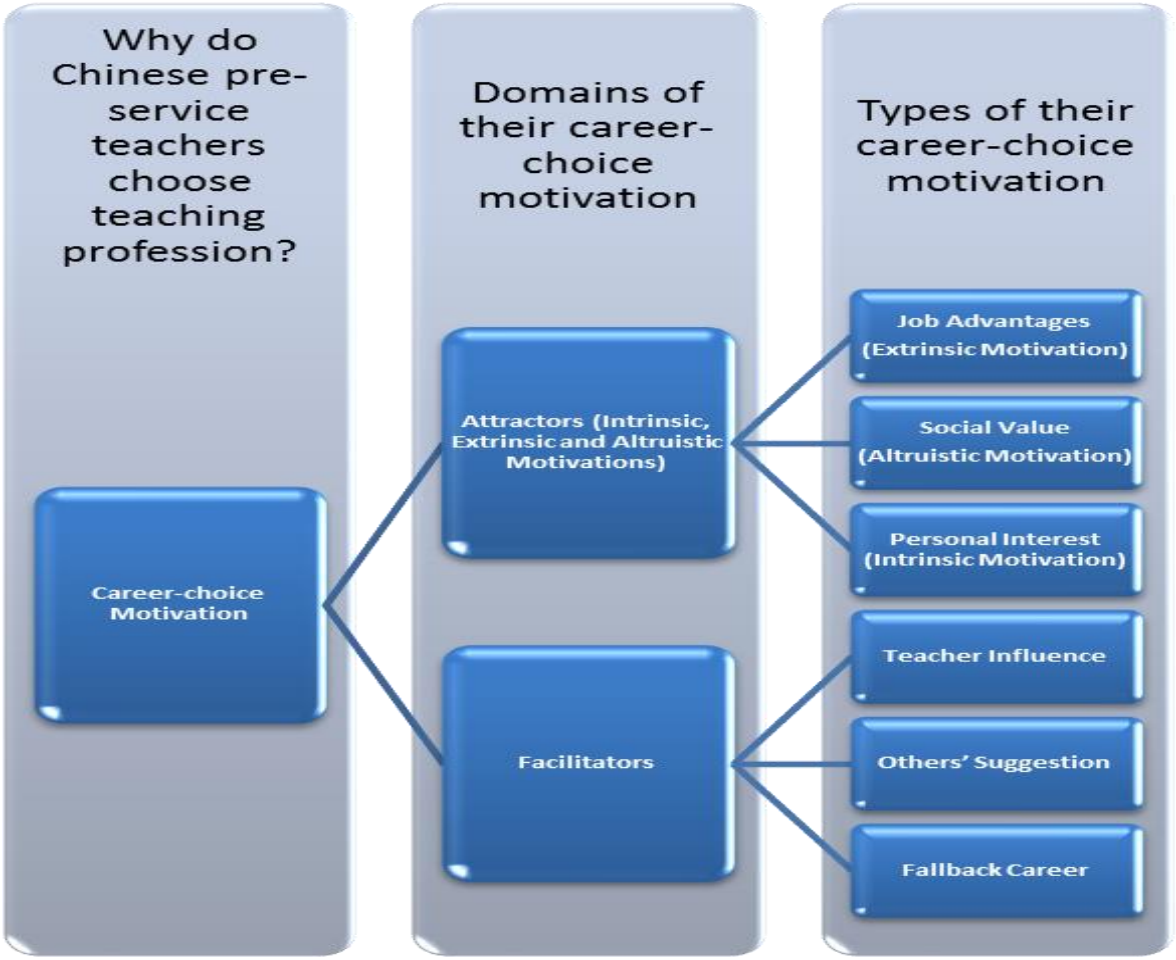

Figure 20: A New Classification Model for Career-Choice Motivation of Chinese Pre-service Teachers

This new classification model, from the holistic point of view, provides a platform for explaining why Chinese pre-service teachers choose the teaching profession. It argues that there are three "attractors" of teaching profession and three "facilitators" coming from the society which work together to positively influence individuals' choice of teaching. The three attractors of teaching profession – *Job Advantages*, *Social Value*, and *Personal Interest* – play the role of extrinsic, altruistic, and intrinsic motives respectively to pull individuals into

the teaching profession; meanwhile, the three facilitators from the environment – Teacher *Influence*, *Others' Suggestion*, and *Fallback Career* – exert their influence to push individuals to choose teaching as their future career. This model could provide an approach to encourage and recruit individuals into teacher preparation programmes in districts or countries where teachers are in urgent need.

The new model draws on two classifications of teachers' career-choice motivation summarised in the present study (see section 2.1.2 in Chapter 2): the "attractors and facilitators" classification (Lortie, 1975) and the "intrinsic, extrinsic and altruistic motivation" classification (e.g., Kobori & Kyriacou, 1998; Kyriacou & Benmansour, 1999; Kyriacou & Coulthard, 2000; Kyriacou et al., 1999). The restructuring of the two existing classifications and their integration into the new model are discussed in the following paragraphs.

In the study conducted by Lortie (1975), "attractors" referred to five unique characteristics of the teaching profession that attracted individuals to pursue it. Among these five characteristics, "interpersonal" (working with young people) and "continuation" (strong desire and passion for teaching) had meanings similar to that of *Personal Interest*; "service" (providing valuable service to the youth and society) contained meaning close to that of *Social Value*; and the last two characteristics "material benefits" (income, prestige, and employment possibility) and "time compatibility" (flexible teaching schedules compatible to family life) had almost equal meanings to the motivation type of *Job Advantages*.

The three types of career-choice motivation within the "attractors" correspond to the "intrinsic, extrinsic, and altruistic motivation" classification. According to the definitions given by Kyriacou and Coulthard (2000), individuals with altruistic motivation to choose teaching regarded it as a socially valuable profession, and they had the desire to help children and to improve the society; people who chose teaching out of intrinsic motivation had interest in job activities, such as teaching children and using subject knowledge and expertise; and those who were motivated by extrinsic benefits to pursue teaching tended to emphasise advantages of the teaching profession, such as long holidays, stable income, and prestige. Examining these definitions found that "altruistic motivation" basically equals to *Social Value*, "intrinsic motivation" is similar to *Personal Interest*, and "extrinsic motivation" is close to *Job Advantages* in the present study. So, the three types of career-choice motivation found in the present study, *Personal Interest*, *Social Value*, and *Job Advantages*, are also labelled as *Intrinsic Motivation, Altruistic Motivation, and Extrinsic Motivation* respectively.

In addition, the altruistic, intrinsic, and extrinsic motivations to choose teaching could also imply these unique characteristics of the teaching profession defined as "attractors" in the work of Lortie (1975). Just as suggested by Low et al. (2011), "the intrinsic, extrinsic and altruistic categories very much reflect the attractors …described by Lortie" (p. 196).

Therefore, these five characteristics of the teaching profession described by Lortie (1975) can be replaced by *Personal Interest (Intrinsic Motivation)*, *Social Value (Altruistic Motivation)*, and *Job Advantages (Extrinsic Motivation)*, which are subordinated to the "attractors" domain of career-choice motivation (see Figure 20).

As the other domain in the same work (Lortie, 1975), "facilitators" represented four social mechanisms that propelled individuals to choose a teaching profession. Among the four mechanisms, "early and affective decisions" (being influenced at an early age by teachers and relatives to choose teaching profession) contained the meaning close to the combined meanings of *Teacher Influence* and *Others' Suggestion;* and "entry under constraint" (choosing teaching due to outside restrictions, such as socioeconomic limitations, unaffordable for expensive university education, parents' intervention, obstacles in original ambitions, and withdraw from previous career) had the meaning similar to the mixed meanings of *Fallback Career* and *Others' Suggestion*. Therefore, the three types of career-choice motivation found in this study – *Teacher Influence, Others' Suggestion,* and *Fallback Career* – could be fit into "facilitators" domain of teaching career choice motivation (see Figure 20).

6.3.3 Comparison with International Rankings

The six different types of career-choice motivation and their classification model presented in the current study showed "complex and nested" motives for Chinese pre-service teachers to choose a teaching profession (Gu & Lai, 2012, pp. 47-48). Most of these motivation types can be found in studies conducted in other countries; however, their importance rated by Chinese pre-service teachers, especially on extrinsic, altruistic, and intrinsic motivations, showed similarities to some countries but difference from other countries.

In the present study, *Job Advantages (Extrinsic Motivation)* as a type of career-choice motivation was rated by Chinese pre-service teachers as significantly more important than *Social Value (Altruistic Motivation)* and *Personal Interest (Intrinsic Motivation)* (see section 4.3.2 of Chapter 4). Analyses on demographic information of these Chinese pre-service

teachers showed that 75.6% of them came from middle or low income families, and 69% of their families were located in rural areas where economic development level was lower than urban areas (see section 4.2.2 of Chapter 4). Similar findings on the motivation rankings were reported by pre-service teachers in other developing economies, such as Brunei Darussalam (Yong, 1995), Jamaica (Bastick, 2000; Evans, 1993), Nigeria (Adkintomide & Oluwatosin, 2011; Olaseboye Olasehinde, 1972), and Zimbabwe (Chivore, 1988). However, pre-service teachers from most advanced economies were reported to rate intrinsic and altruistic motivations to teach significantly higher than extrinsic motivations. These countries included the USA (Bielby et al., 2007; Summerhill et al., 1998), Australia (Richardson & Watt, 2006; Sinclair, 2008), New Zealand (Lovett, 2007), the UK (Ivan & Jonathan, 1997), Ireland (Heinz, 2013; Moran et al., 2001), Netherland (Fokkens-Bruinsma & Canrinus, 2012, 2014), Germany (König & Rothland, 2012), and Singapore (Goh & Atputhasamy, 2001; Low et al., 2011). Moreover, many previous studies found that Chinese pre-service teachers emphasise extrinsic reasons more than their American counterparts (Lin et al., 2012; Liu, 2010; Su et al., 2001).

These findings, altogether, seem to support the existing argument that sociocultural contexts could impact pre-service teachers' career-choice motivation: pre-service teachers from high-income countries were more likely to emphasise intrinsic and altruistic motivations to teach than extrinsic motivation, while those from low-income countries may emphasise extrinsic motivation more than intrinsic and altruistic motivations (Bastick, 2000; Low et al., 2011; Richardson & Watt, 2010).

Maslow's theory of motivation (Maslow, 1970) could be applied to interpret this finding. This seminal theory states that individuals are basically motivated by five hierarchical levels of needs: physiological needs (such as water, food, and breathing), safety needs (such as security of body, security of employment, and security of morality), love and belonging needs (such as friendship, family, and sexual intimacy), esteem needs (such as self-esteem, confidence, achievement, and respect of and by others), and self-actualisation (such as morality, creativity, spontaneity, problem solving, lack of prejudice, and acceptance of facts). Moreover, it predicts that the higher level needs will remain weak until the lower level needs are met. Maslow's theory of motivation, to a large degree, is compatible with the extrinsic, intrinsic, and altruistic classification of motivations because the extrinsic motivations generally reflect the lower level needs; while the intrinsic and altruistic motives basically mirror the higher level needs. Therefore, according to Maslow's theory, it is understandable

that in the low-income countries where people are striving to meet basic living needs, extrinsic motivation will be more important than intrinsic and altruistic motivations for teachers to choose teaching as a career. However, in the high-income countries where social welfare systems are well developed and people are pursuing higher level meaning of life, intrinsic and altruistic motivations will become more important than extrinsic motives for individuals to become a teacher.

6.4 Discussion Three: Correlation between Career-Choice Motivation and Study Engagement of Chinese Pre-service Teachers

This section firstly discusses the definition of study engagement in the present study and the implication of Chinese pre-service teachers' ranking on it. It is followed by discussing the relationship between some motivation types and study engagement for Chinese pre-service teachers and its implications.

6.4.1 Study Engagement in Teacher-Training Programmes

Studies investigating *Study Engagement* take different perspectives. Each perspective contains its own understanding of the concept of *Study Engagement*, with definitions of the concept being based on the specific perspective taken by the research. For these reasons, there are various definitions about *Study Engagement* (e.g., Fredricks et al., 2004; Kahu, 2013; Trowler, 2010; Zepke & Leach, 2010). As summarised by Kahu (2013), there are four research perspectives: behavioural, social-cultural, psychological, and holistic perspectives. The present study aligned more with the psychological perspective which considers *Study Engagement* as a consequence of other factors. The main factor considered in the current study was the impact of a funding policy on Chinese pre-service teachers' study engagement, though the current work also explored possible relationships between *Career-Choice Motivation* and *Study Engagement.* Both purposes regard *Study Engagement* as an outcome rather than antecedent, which is consistent with the understanding of a psychological perspective (Kahu, 2013). Therefore, the definition of *Study Engagement* developed in the present study is based on the psychological research perspective.

Study Engagement of pre-service teachers in the present study is defined as the combination of learning duration (persistence) and active learning (enthusiasm) in teacher-training programmes. Two dimensions were applied to measure the strength of *Study Engagement* of Chinese pre-service teachers: *Persistence* and *Enthusiasm.* Both dimensions are related to the

psychology perspective. Persistence means the "time" devoted to study and enthusiasm refers to the "energy" spent on studying in teacher-training programmes. This preliminary definition could be illustrated by a metaphor. If a "rectangle" is used to describe *Study Engagement*, *Persistence* should be its length and *Enthusiasm* should be its width. The two dimensions together determine "the area of the rectangle", which represents the strength of *Study Engagement*.

For the two dimensions of study engagement, Chinese pre-service teachers rated enthusiasm higher than persistence, and their overall engagement level was just slightly above average. This finding is not encouraging as some existing literature suggests that study engagement could predict pre-service teachers' future engagement in the teaching profession (e.g., Jordell, 1987; Steen, 1988). It is therefore important for future studies to find out factors that are related to pre-service teachers' study engagement. The present study assumed that different types of career-choice motivation could be one of these factors, which is going to be discussed in the next section.

6.4.2 Relationship between Career-Choice Motivation and Study Engagement

Among the six types of motivation to become a teacher, *Social Value (Altruistic Motivation)* and *Personal Interest (Intrinsic Motivation)* were the two variables that had positive correlations with both *Study Engagement (Total Engagement)* and its two dimensions, and they both entered all the three regression models to predict *Total Engagement, Persistence, and Enthusiasm.* These results elaborate existing literature which suggested that motivation to teach could be correlated with training engagement (Pintrich, 1990; Siu et al., 2014) and answer the question raised by Sinclair et al. (2006) about the effects of entry motivation on pre-service teachers' engagement in training programmes. Moreover, these results, together with previous studies which suggested that pre-service teachers' engagement in teacher-training programmes could positively predict their engagement in their future teaching profession (Jordell, 1987; Steen, 1988; van Beek et al., 2012), have the implication that pre-service teachers' altruistic and intrinsic career-choice motivations, such as personal interest in teaching, helping children develop, making contributions to society, and improving social equality, are adaptive to both their present teacher preparation and their future professional development.

In the regression models, the percentage of variance of study engagement explained by the independent variables (different types of career-choice motivation) was only around 20%, and the regression coefficients (B values) of these independent variables were all under 0.3. These results indicate a relatively weak predictive power of pre-service teachers' career-choice motivation for their study engagement. The finding could be ascribed to the nature of study engagement – it is subjected to the complex interplays of various influencing factors. According to the conceptual framework of engagement and antecedents developed by Kahu (2013), these factors were categorised into two groups: the structural influences (such as curriculum and assessment of university, and family background of students) and the psychosocial influences (such as teachers' support at university, and students' motivation and self-efficacy). Moreover, factors in each group interacted with each other, and they were all influenced by the wider social-cultural context, such as culture, power, policy, and economics (Kahu, 2013). Therefore, it is unlikely that one of these influencing factors, career-choice motivation alone, could accurately predict the level of pre-service teachers' study engagement in teacher-training programmes.

The motivation type of *Job Advantages (Extrinsic Motivation)* in the present study was not correlated with *Total Engagement (Study Engagement);* however, in the regression models, it had a negative correlation with *Persistence* and a positive correlation with *Enthusiasm.* The finding supports the argument that the influence of extrinsic career-choice motivation was not always negative (König & Rothland, 2012). It could be interpreted as that the extrinsic benefits of teaching profession would stimulate pre-service teachers' passion to study hard, but these pre-service teachers could decrease their time to study as they have low personal interest in teaching and underestimate the altruistic values of the profession. Therefore, the impacts of pre-service teachers' extrinsic motivation on the two dimensions of *Study Engagement* may offset and show no correlation with their *Study Engagement* in teacher-training programmes.

Although it was rated by Chinese pre-service teachers as the most important type of career-choice motivation, *Teacher Influence* was found to have no significant correlation with *Study Engagement* or its two dimensions, and it did not enter the three regression models to predict *Study Engagement* and its dimensions. These results mean that there could be no relationship between *Teacher Influence* and *Study Engagement* for Chinese pre-service teachers. A possible reason for this finding may lie in the complexity of previous school teachers' influence on pre-service teachers' choice of teaching. As reported by some pre-service

teachers, although school teachers' dedication to teaching moved some of their students to enter teaching programmes and study hard during pre-service teacher training, those teachers actually had a higher expectation for their top students' future development, and they personally did not want them to become a teacher (see section 5.3.1 in Chapter 5). Once those "naive" pre-service teachers finally understand their school teachers' expectations on them, it would become difficult for them to study hard in teacher-training programmes.

6.5 Discussion Four: Demographics and Perceptions of Chinese Pre-service Teachers

This section starts with discussing the demographic background of Chinese pre-service teachers, such as their gender proportion, home region, and age. This is followed by discussions of the potential impacts of some demographic variables on policy-funded pre-service teachers' career-choice motivation and study engagement respectively. Possible reasons for and implications of these demographic impacts are also discussed. Then this section describes a seemingly contradictory finding about policy-funded pre-service teachers' perception about the teaching profession, and explains possible reasons for the finding. Finally, the policy-funded pre-service teachers' attitudes towards the funding policy, and their correlations with some factors, such as career-choice motivation, perceptions about teaching profession, determination to teach, and study engagement, are discussed.

6.5.1 Demographic Profile of Chinese Pre-service Teachers

Far more female than male Chinese prospective teachers were found in the present study for both the self-sponsored and policy-funded students. This finding is in line with a previous study (Su et al., 2001) which reported similar gender proportion of pre-service teachers in mainland China. Studies in other contexts, such as Australia (Richardson & Watt, 2006) and America (Guarino et al., 2006), also showed that the number of female pre-service teachers was larger than that of their male counterparts. Findings of the present study, together with previous studies, seem to support the argument that teaching as a profession was often found to be more popular with females than males, and hence it became a "female job" (Edmonds et al., 2002; Goodson & Hargreaves, 1996; Hatch, 1999; Zhao, 2008).

Chinese pre-service teachers, as reported in the present study, were more likely to come from rural-area families and to have a low family income. Although this finding should be treated with caution as 16.5% of the data about participants' family income were originally missing

(they were remedied by Expectation Maximization approach in the present study), it is in line with another study (Su et al., 2001) which reported that the majority of Chinese pre-service teachers came from rural areas and had a disadvantageous family background compared to their American counterparts. Teacher students in other contexts, such as Australia (Richardson & Watt, 2006) and other western countries (Brookhart & Freeman, 1992), were also found to have a relatively low family income compared with other undergraduates in their contexts. Those with a poor family background should be funded for their teacher training at university. However, the present study showed a different scenario for Chinese pre-service teachers: the self-sponsored prospective teachers were poorer and more likely to come from rural-area families than those funded by the policy. The seemingly contradictory finding may be ascribed to the enrolment criterion of the Government-Funded Teacher Education Policy programmes – the National College Entrance Examination (NCEE) score. In mainland China, high school students from urban-area families with affluent family backgrounds are more likely to gain high quality learning resources, such as private tutoring, and hence to achieve high scores in NCEE (This is echoed by the finding of present study that the policy-funded pre-service teachers have higher NCEE scores than their self-sponsored counterparts). Therefore, when recruiting students with higher scores, the six national top teacher-training universities implementing the funding policy could recruit more students from wealthy families than other universities where students are self-sponsored.

The other demographic features of participants reported in the present study indicated that Chinese pre-service teachers were basically young and dominantly Han people. These findings echo the previous studies too. In the large-scale national survey conducted by Su et al. (2001), the majority of Chinese pre-service teachers were younger than 25, and most of them were Han people with only about 13% ethnic minority teacher students. Similar finding about the age of pre-service teachers was also shown in Australian context where students training to become teachers were usually between their early and late 20s (Richardson & Watt, 2006).

Additionally, Chinese pre-service teachers funded by the policy were found to be more determined to become a teacher than those self-sponsored. One reason for this could be lie in the requirement of the Government-Funded Teacher Education Policy. As a condition to be funded by the policy, every one of the policy-funded pre-service teachers has to sign a contract before registering in a teacher-training university promising to teach for at least ten years after graduation. Signing this contract could strengthen many students' resolve to

become a teacher, although some of them may keep their promise just for "saving face" even if they changed their original idea during teacher training. The other reason might be related to another finding of the present study that the self-sponsored pre-service teachers generally had a lower National College Entrance Examination (NCEE) score than that of the policy-funded students. As revealed by a previous study (Su et al., 2001), Chinese pre-service teachers with lower NCEE scores were more likely to reluctantly choose teacher-training programmes – they may not really want to become a teacher, but chose it as a fallback career because their scores were not high enough to attend other university programmes.

When interpreting demographic information of Chinese pre-service teachers, limitations of the sample in present study should not be ignored. Participants in this study were first-year and last-year university undergraduates from three teaching-training universities located in southwest and central mainland China. Therefore, it is possible that they only represent the situation of pre-service teachers in these less developed areas in China. Although these limitations could influence the representativeness of the sample, the relatively large sample size (712 participants), and more importantly, the widespread geographical distribution of the participants' home places which cover almost all divisions across mainland China could somehow remedy these limitations.

6.5.2 Impacts of Demographic Variables on Career-Choice Motivation of Policy-Funded Pre-service Teachers

Similar to the whole sample, the policy-funded pre-service teachers rated *Teacher Influence* as the most important, and *Others' Suggestion* and *Fallback Career* as the least important types of career-choice motivation. However, different from the entire cohort, they rated *Job Advantages (Extrinsic Motivation)*, *Social Value (Altruistic Motivation)*, and *Personal Interest (Intrinsic Motivation)* as the second important types of career-choice motivation as their ratings on them had no significant difference. The following paragraphs discuss the potential impacts of some demographic variables on policy-funded pre-service teachers' career-choice motivation.

Gender difference in career-choice motivation was found in further analyses. The results showed that, when choosing teaching as their future career, female pre-service teachers funded by the policy emphasised more on social contribution of teaching, job advantages of teaching, personal interest in teaching, and previous teachers' influence than male

counterparts; while male policy-funded pre-service teachers were more likely to choose teaching because they have no other better choice. This finding is not consistent with two studies which reported no difference in career-choice motivation between male and female pre-service teachers in Singapore (Goh & Atputhasamy, 2001) and Australia (Richardson & Watt, 2005), and is opposite to one study which reported that male pre-service teachers have a higher extrinsic motivation to teach than females in Turkey (Topkaya & Uztosun, 2012). However, it echoes many previous studies which showed that female pre-service teachers had higher personal interest in teaching than male counterparts in both Chinese contexts (Lai et al., 2005; Li et al., 2013) and other countries (Heinz, 2013; Moran et al., 2001). These dissimilar findings not only suggest the complexity of teachers' career-choice motivation, but also indicate that gender impacts on pre-service teachers' career-choice motivation might be mediated by the contexts of different countries.

Two reasons may help understand gender difference in Chinese pre-service teachers' career-choice motivation commonly found in present study and other previous studies (Lai et al., 2005; Li et al., 2013). One possible reason may lie in the fact that school teachers were predominantly females who may be more influential on female students' career-choice. This could explain why female policy-funded students rated *Teacher Influence* higher than males as their motivation to teach. Another reason may be related to the traditional Chinese culture which has a relatively stereotyped perception on what kinds of professions women and men should pursue in the society. People influenced by the culture tend to think school teaching is a "female job", and males should do something more challenging and profitable, such as business and engineering. Although this traditional concept might be weakened among younger generation in China by modern thoughts of freedom, the authority of older generation could still force children to follow their parents' suggestions. For this reason, Chinese female students are more likely to choose teaching profession for all extrinsic, altruistic, and intrinsic reasons; while males are more likely to choose teaching as a fallback career – they may have no other choice or they may be uncertain about their professional aims.

The difference of year of study in the policy-funded pre-service teachers' career-choice motivation was also found in the present study. Overall, the policy-funded students in their first year of undergraduate studies rated *Teacher Influence*, *Job Advantages*, and *Social Value* as their teaching career choice motivation significantly higher than their last (fourth) year counterparts. This finding is different from one study which reported that pre-service teachers

majored in English at different stages of their undergraduate studies in Turkey had no significant difference in career-choice motivation (Topkaya & Uztosun, 2012); however, it is in line with some other studies which found significant difference in career-choice motivation between first-year and third-year Chinese pre-service teachers in the Government-Funded Teacher Education programme in China (Li et al., 2013), and between the students at the beginning and at the end of a single year teacher-training programme in Netherland (Canrinus & Fokkens-Bruinsma, 2014; Fokkens-Bruinsma & Canrinus, 2012). These results suggest that the impacts of year of study on pre-service teachers' career-choice motivation could be mediated by teacher-training programmes and national contexts.

Two possible reasons could be proposed for the finding about impacts of year of study on policy-funded Chinese pre-service teachers' career-choice motivation. Firstly, the last-year (the fourth year) undergraduates in the present study had been studying at university for more than three years already, so the influence of their previous school teachers on their future career choice could have faded away and become weaker when compared with the first-year undergraduates who just graduated from high schools several month ago. Secondly, pre-service teachers' understanding of advantages and social values of teaching profession could have been changed during four-year teacher preparation. This interpretation is supported by many previous studies which pointed out that teacher-training programmes and internships could influence pre-service teachers' career-choice motivation (Canrinus & Fokkens-Bruinsma, 2014; Fokkens-Bruinsma & Canrinus, 2012; Sinclair, 2008; Sinclair et al., 2006).

Job Advantages as a type of career-choice motivation was similarly found to be impacted by the demographic variables of ethnicity, home region, and family income of policy-funded pre-service teachers. Firstly, Han Chinese pre-service teachers funded by the policy perceived *Job Advantages* as a significantly more important reason to choose teaching profession than their ethnic minority counterparts, and they had no significant difference in other five types of motivation. Although further studies are needed to explore the reasons, this finding would be not encouraging as emphasising on *Job Advantages* of teaching profession was not always adaptive for professional development, and Han pre-service teachers were found to be predominated (84.6%) in this study. Secondly, the policy-funded pre-service teachers from urban areas and those with high family income rated *Job Advantages* as a type of teaching career choice motivation significantly higher than those from rural areas and those with low family income respectively. In China, people living in urban areas generally have a higher family income than those in rural areas, so these findings could commonly suggest the impact

of family background on Chinese pre-service teachers' career-choice motivation: the wealthier family background the pre-service teachers have, the stronger emphasis they place on extrinsic benefits of teaching profession. Pre-service teachers from wealthier families were also found to be less likely to choose teaching (Lai et al., 2005) but they placed a greater emphasis on the benefits of the Government-Funded Teacher Education Policy (Li et al., 2013). All these findings together could predict that rich students would like to choose the government-funded education programmes rather than enrol in the self-funding teacher training programmes. This prediction is supported by and explainable for the previously seemingly contradicted finding in the present study that the policy-funded pre-service teachers seemed to have an overall higher family income than those sponsored by themselves.

6.5.3 Impacts of Demographic Variables on Study Engagement of Policy-Funded Pre-service Teachers

The policy-funded pre-service teachers in the present study did not report high levels of *Persistence*, *Enthusiasm*, or *Total Engagement* in teacher-training programmes. This finding is not encouraging as previous studies suggested that a high-level study engagement was a key contributor to student academic success (Bakker et al., 2015; Schaufeli, Martínez, et al., 2002). Various reasons causing the relatively low engagement should be explored in future studies. In the present study, participants' demographic information and the funding policy were examined for their possible impacts on Chinese pre-service teachers' study engagement.

Some demographic variables, such as "ethnicity", "family income", "year of study", and "National College Entrance Examination scores", had no significant influence on study engagement of the policy-funded pre-service teachers in the present study. For "year of study", similar result was reported in studies (Ji et al., 2011; Zhao, 2013) that no difference between junior and senior pre-service teachers funded by the policy; for the other three demographics, however, few previous studies examined their impacts on study engagement.

Male students funded by the policy had a higher level of *Persistence* than their female counterparts, but they had no significant difference in *Enthusiasm* or *Total Engagement* in teacher-training programmes. The results demonstrate that the impacts of "gender" on study engagement are not straightforward, and thus could help explain why findings from previous studies seem contradictory: some found no "gender" difference in study engagement (Chen,

2013; Zhao, 2013), while another study reported that female students had a higher level of study engagement than their male counterparts (Ji et al., 2011).

The only demographic variable that impacted both dimensions of study engagement was "home region": the policy-funded pre-service teachers from rural-area families had significantly higher levels of *Persistence*, *Enthusiasm*, and *Total Engagement* than those from urban-area homes. Due to the fact that in China the socioeconomic development level of rural areas is commonly lower than that of city areas, this finding could be interpreted as that the students from poor families try to make full use of the opportunity provided by the funding policy to receive higher education; therefore, they study harder than their counterparts from urban rich families. The other possible reason could be that the families in city areas usually have a high expectation for their children's future development. However, as prescribed by some restrictive policy terms, the policy-funded pre-service teachers have to teach for ten years with two years in poor rural schools, and they have no chance to become an academic postgraduate. Once they feel disappointed by these policy terms, the policy-funded pre-service teachers with urban family background may not study hard in teacher training programmes.

6.5.4 Policy-Funded Pre-service Teachers' Perceptions about Teaching Profession

The policy-funded pre-service teachers in the present study perceived the requirement of school teaching ("expertise" and "difficulty") as high, but the reward gaining from the same profession ("social status" and "salary") as relatively low. Moreover, they were overall satisfied with the choice of teaching profession. These results seem to be contradictory to the common sense that individuals should be unsatisfied with a job that requires high demands but returns low rewards. However, as discussed below, these results could reflect the current situation of teaching as a profession in China and the possible influence of the funding policy.

On the one hand, they think teaching is a demanding job with low rewards in current Chinese society. This could be caused by several factors. After the new curriculum reform started at the beginning of the twenty-first century, diversified courses are created and implemented in schools in China, and many of them require comprehensive knowledge and skills of teachers. For the core courses which remain the same as before, the diversification of curriculum assessment also adds difficulties to school teaching. At the same time, with more and more

students at school are the "only child" of their families due to the One Child Policy[14], how to manage those usually self-centred students has been a challenge for many teachers, especially for those who just start a teaching career. Moreover, the change from planned to market-driven economy has changed most Chinese people's ideas about career. The only criterion to evaluate a career, for many people, is the material benefits. With the increase of commodity's price, teaching staff in China often complain about the relatively slow increase of teachers' salary. Some teachers' behaviours which breach professional morality, as reported and spread by social media in recent years, could damage the positive images of teachers traditionally accepted in Chinese society; and consequently, the social status of the teaching profession in the eyes of the public may decline. It is believed that all these factors combined together could shape Chinese pre-service teachers' perception about the teaching profession: they tend to perceive school teaching as a high demanding but low rewarding profession as found in the present study.

On the other hand, the policy-funded pre-service teachers feel satisfied with their choice to become a teacher. Their satisfaction with the choice might not be ascribed to their personal interest in teaching because *Personal Interest* as a type of motivation to choose teaching, according to the results of present study, is rated relatively low by Chinese pre-service teachers. It is argued, however, that the policy-funded pre-service teachers are happy with their choice because the funding policy caters for their particular needs. Firstly, the majority of policy-funded pre-service teachers, as the demographic information demonstrates, come from rural areas with middle or low family income. Without funding from the policy, some of them would have lost the opportunity to attend university due to financial difficulties. So they are happy to enrol in a teacher-training programme in order to receive both financial support and higher education opportunity provided by the policy. This seems to be correspondent with the result that, among all the policy terms, the policy-funded students were most satisfied with the one which waives tuition and other fees for them. Secondly, facing the stringent job-market in current Chinese society, it is deemed as critically important for candidates to choose a programme at university that can equip them with skills and knowledge needed by the market. Fortunately, according to the provision of the policy, all the pre-service teachers enrolling in the government-funded teacher-training programmes are guaranteed a teaching job after graduation. This relieves students' burden for job hunting, and

[14] The One Child Policy has been changed since 2016 which allows each couple to have two children.

hence could increase their satisfaction level with the choice of the policy-funded education programmes to become a teacher.

Therefore, these research findings about the policy-funded pre-service teachers' perceptions are not contradictory. They reveal the reality of the teaching profession in current Chinese society and the potential impacts of the Government-Funded Teacher Education Policy on pre-service teachers' attitudes towards the profession. It is suggested that future studies could follow up these participants to examine the changes and development of their perceptions and attitudes on teaching after they become in-service teachers.

6.5.5 Policy-Funded Pre-service Teachers' Attitudes towards the Funding Policy

Policy-funded pre-service teachers had different attitudes towards each term of the policy. According to their satisfaction levels with the policy terms, the policy-funded pre-service teachers were categorised into three groups. Each group of pre-service teachers was significantly different from other groups in four themes: teaching career choice motivation, perceptions about school teaching, decision-making processes, and study engagement in teacher-training programmes. These differences could suggest some correlations between pre-service teachers' attitudes towards the funding policy and these four themes as illustrated below.

The policy-funded pre-service teachers from the high and the medium satisfaction groups tended to rate most of their career-choice motivation types, such as *Teacher Influence, Job Advantages, Social Value, Personal Interest, and Others' Suggestion,* higher than those from the low satisfaction group. The only exception is *Fallback Career* which was rated higher by the low satisfaction group than by the other two groups. This finding suggests that those who have positive attitudes about the funding policy could choose to become a teacher for various reasons. They may be encouraged by school teachers, parents, and friends, and they may emphasise the extrinsic, intrinsic, and altruistic values of teaching profession which attract them to pursue it. However, for those with relatively negative attitudes to the policy, they are more likely to choose teaching as a fallback profession. They may not think carefully about the policy terms and the teaching profession before choosing the government-funded teacher education programmes, and after enrolment, they may find the policy terms unpleasant as they restrict their future development (see Chapter 5).

The results also suggest that attitudes towards the funding policy could be related with perceptions about teaching profession. For pre-service teachers who have a positive attitude towards both the encouraging and the restrictive terms of the funding policy, they are more likely to think that school teaching is a high demanding job with good rewards. On the contrary, for pre-service teachers with negative attitudes towards the funding policy, they tend to perceive teaching as an easy job with poor rewards. This finding indicates that high demands of teaching profession do not necessarily act as a factor to deter individuals from choosing it. Similar to high returns of teaching profession, high requirements could be a sign of professionalism for teachers.

For the three groups of pre-service teachers with different satisfaction levels towards the funding policy, they all had experienced similar dissuasion against choosing teaching as their career from important others, such as parents, friends, and classmates. However, these pre-service teachers' personal satisfaction levels towards the choice of teaching profession are significantly different. Those with high satisfaction levels to the funding policy tend to be highly satisfied with the choice; while those who are lowly satisfied with the policy generally have a low satisfaction level to the choice of teaching profession. This demonstrates that their attitudes towards the funding policy could be in line with their attitudes towards the choice of teaching as their future career.

Finally, the three groups of policy-funded pre-service teachers seem to have different levels of study engagement in teacher-training programmes. The high policy satisfaction group generally reports a high level of study engagement; while those from the low policy satisfaction group tend to have a low level. The results could be interpreted as that, for those with positive attitudes towards the policy, the restrictive policy terms may be consistent with their plans for future career development and the encouraging policy terms may act as facilitators for them to study hard in order to realise their plans. The explanation to those with negative attitudes to the funding policy may be just opposite. The finding suggests that improving the policy terms which pre-service teachers are not happy with may be beneficial to enhancing their study engagement in teacher-training programmes.

6.6 Recommendation

Findings of the current study and the above discussions reveal some problems related to the funding policy, teacher education, and career education in China. This section therefore

proposes some preliminary recommendations to deal with them. Included are: improving the funding policy through changing some policy terms and strengthening supportive measures for carrying out the policy; reforming teacher education in China in the processes of recruiting, training, and evaluating pre-service teachers at university; and emphasising the importance of career education at high schools in China.

6.6.1 The Government-Funded Teacher Education Policy

The funding policy aims to cultivate a high-quality and stable teaching force who would like to serve rural schools for a couple of years. To achieve these purposes, the policy contains multiple benefits, such as tuition-free education, free accommodation, and allowance to living costs, to attract excellent high-school graduates into teacher-training programmes. Meanwhile, students enrolled in these programmes are bonded to ten-year teaching services with two years in a poor rural area school. However, these encouraging and restrictive provisions trigger arguments about the policy's negative influences on pre-service teachers' motivation to choose teaching and their study engagement in teaching programmes (e.g., Chen, 2013; Wu & Liu, 2008). Although no overall negative impact was found in the present study, the decline of intrinsic career-choice motivation and study engagement for policy-funded pre-service teachers during teacher training suggests some of the policy terms could have potential undermining effects.

Further analyses showed that three terms in the funding policy – "no opportunity for academic postgraduate study", "minimum ten-year teaching services", and "returning back to home province for teaching" – were highlighted by the policy-funded pre-service teachers as the most dissatisfied provisions (see section 4.9 in Chapter 4). Although policy-funded students may follow them to start the long-time teaching services immediately after graduation, these three policy terms could deprive them of the opportunity to further their higher education levels and confine their future career development. Furthermore, as the narrative stories indicated (see section 6.2.3 of this chapter), these terms could decrease the possibility to choose education programmes and may contribute to the relatively low and declining study engagement for students with extrinsic motivation to teach. Therefore, it is suggested to further explore if slight modification of these three policy terms as below should be made in order to reduce their potential undermining effects.

(i) Some of the policy-funded pre-service teachers could be allowed to attend exams for academic postgraduate study. For those who passed the exams, their teaching services could

be postponed until they complete their postgraduate studies. This could not only ensure the teaching services, but also guarantee the educational rights of those who want to further their study and enhance the quality of their teaching services.

(ii) It could be explored if the duration of teaching services should be reduced from ten years to around six years. As most of them would be in their 30s when they complete the ten-year teaching services, the shortening of teaching services could make it earlier for those who find teaching unsuitable for themselves during the services to switch to other jobs. Thus, only those who are really interested in teaching will stay in teaching profession.

(iii) Further studies would be useful to determine whether the graduates from the policy-funded teacher education programmes should be able to negotiate where they teach. With no limitation about home-province teaching, the high quality graduates can teach in provinces where teachers are in scarcity, and thus could help improve equal distribution of high quality teaching force across different provinces.

In addition, the supportive measures for implementing the Government-Funded Teacher Education Policy might be able to be improved. Firstly, the importance of the policy should be widely publicised in society, and the details of the policy terms should be explained carefully among high school graduates before they complete university application forms. This can ensure that parents and students fully understand the benefits and the obligations they will have if choosing the policy-funded programmes, and hence reduce the possibility to choose teaching as a fallback career or feel regretful during teacher training. Secondly, a sound mechanism should be established for the policy-funded students to withdraw from the policy-funded teacher-training programmes. This can help select high quality teaching candidates by filtering out those who have low personal interest in teaching profession or low study engagement in training programmes. Lastly, the salary and the social status of teachers need to be raised, and teaching conditions in rural schools need to be improved. Teaching as a profession will become popular for individual to pursue when teachers are rewarded well and respected highly in the society, and the improvement of poor schools' teaching condition can attract high quality teachers to come and stay for long-time teaching. Retaining high quality teachers in schools are more likely to be achieved by implementing the funding policy and improving these supportive measures at the same time.

6.6.2 Teacher Education at Universities in China

Currently, the criterion for recruiting candidates into teacher education programmes in China is solely their scores in the selective National College Entrance Examination, which are supposed to represent their academic performance. The lack of screening candidates' motivation to choose teaching as their future profession could be part of the reasons for the low ranking of intrinsic career-choice motivation among Chinese pre-service teachers demonstrated in the current study. Moreover, during four-year teacher training at the university implementing the funding policy, the decline of personal interest in becoming a teacher and the decrease of study engagement in teacher-training programmes suggest the need to improve curriculum design and assessment for pre-service teachers at the university.

Therefore, it is suggested firstly to establish a teaching motivation profile of pre-service teachers at each teacher-training university, which can be updated annually. This could provide useful information for different shareholders in teacher education (Liu, 2010). For teacher educators, they can better understand and appropriately support pre-service teachers; for educational researchers, they can analyse the relationship between pre-service teachers' career-choice motivation and other related factors; and for university leaders and policy makers, they can implement proper plans and policies on pre-service teacher recruitment and preparation, and design high quality teacher education programmes according to data in the profile.

Secondly, effective admission interviews should be adopted for recruiting pre-service teacher candidates into teacher-training programmes. In western countries, three measures are usually taken for recruiting new teachers: credential test scores, surveys, and interviews. The sequence for implementing them – which one goes before others – usually leads to different results (Kennedy, 2008). In China, it is suggested to carry out the admission interview for the pre-service teacher candidates before screening their scores in the National College Entrance Examination. During the interview, their attitudes towards teaching should be examined and their career-choice motivation profile should be consulted. Only those who meet all the criteria of teaching attitude, career-choice motivation, and exam scores can be recruited into teacher-training programmes.

Lastly, it is recommended to reform the curriculum and the evaluation system in teacher-training universities. The curricula should focus on practical teaching skills more than

educational theories, and the evaluation criteria should be diversified which not only tests knowledge but also assesses teaching skills, affection, and attitudes of pre-service teachers.

6.6.3 Career Education at High Schools in China

Contrary to most studies in western contexts where "intrinsic motivation" was frequently found to be the most influential factor, Chinese pre-service teachers, as results of this study demonstrate, rated "teacher influence" as their most important motivation to choose a teaching profession, which was followed by "job advantages". "Intrinsic motivation", however, was rated as fourth important among the six reasons. The further interviews with Chinese pre-service teachers (see Chapter 5) also showed that their choice of teaching was often influenced by extrinsic factors, such as parents' suggestion and the benefits of the funding policy. Some of them even changed their original plan at the final moment just for the benefits of teaching profession and the policy. These problems, to a large degree, could be ascribed to the shortage of career education teachers, courses, and advice at high schools in China.

Up until now, in most schools in China, counselling services for students' future career development has been rarely provided (Liu, 2010). The reasons behind this may be diversified, but the major attribution should be the penetrative effects of the so called "examination oriented education" on school teaching, learning, and management. Almost all school teachers and leaders put their time and energy mainly on how to improve students' academic achievement and their scores in exams. Consequently, they have ignored the important aspect of students' future career development.

Without such career counselling education, high school graduates would face challenges for their future career development. They may hesitate when they have to make a decision about which university major to choose, especially for career-related majors, such as medicine, mechanics, and education. The problem could become even more severe for the policy-funded pre-service teachers because, when they just graduate from high schools, they all have to sign a contract promising to teach for ten years.

Therefore, it is suggested that an emphasis should be placed on career counselling at high schools in China. With scientific guidance and orientation courses, high school students could be equipped with rich knowledge about their own personality and features of different careers, which could help them understand their personal interest and develop useful skills suitable

for a specific career. Thus, when they graduate from high schools, they would become more careful and rational to choose a university major, and their choice of education programmes will more likely to be personal-interest based.

6.7 Limitation and Future Study

The present study is meaningful and significant in terms of exploring the impacts of the Government-Funded Teacher Education Policy on career-choice motivation and study engagement of Chinese pre-service teachers. However, due to the restriction of research resources, there are several limitations in the study in terms of the representativeness of participants, the survey instruments and techniques applied, and the research approach followed. Future studies are recommended to break through these limitations and contribute more knowledge to this field.

Firstly, this study surveyed participants from three universities – one carried out the funding policy and the other two did not. Although the home regions of these participants covered most provinces of China, all the three universities were located in southwest and central China where the economic development levels are generally lower than the northeast and the coastal regions of the country. It is uncertain whether the locations of teacher-training universities could influence career-choice motivations and study engagement of Chinese pre-service teachers, but involving universities from a wider range of areas across China in future studies will definitely increase the representativeness of findings.

Secondly, for each university in the present study, only the first-year and the last-year pre-service teachers were surveyed to compare their career-choice motivation and study engagement. Without sampling year-two and year-three students, however, the whole picture of the changes during the four-year teacher training at university cannot be revealed. Therefore, future studies are suggested to investigate pre-service teachers from all four levels of year of study so as to describe the changing trend during teacher training. The results will provide useful information for designing effective curriculum for students at each year of study and for reforming instruction skills for training pre-service teachers.

Thirdly, this study applied a qualitative approach of online audio interviews after the quantitative explorations in order to have a fuller understanding of the quantitative findings. However, only seven policy-funded pre-service teachers were involved in the interviews. The small number of interviewees who were all policy-funded students could limit the

representativeness and reliability of their narrative stories. Moreover, although the online audio interviews could let interviewees feel secure to express their real inner voice by hiding their images from the researcher, some important information in the interviews may be lost as the researcher was unable to observe their facial expressions. Therefore, future studies are suggested to use multiple methods in the qualitative study, such as face-to-face interview, group discussion, and classroom observation, to gather information and voices from more pre-service teachers as well as their parents, teacher educators, university leaders, and policy-makers.

Fourthly, as there is no standardised questionnaire to measure pre-service teachers' study engagement, this study applied the UWES-S-17 scale, which was originally used to measure engagement of university students. Therefore, results from the present study may not reflect pre-service teachers' study engagement in some special teacher-training programmes, such as teaching internship, tutoring practice, and art courses. It is therefore recommended for future studies to develop and validate a standardised questionnaire focusing on pre-service teachers' study engagement in teacher training programmes, and to exam the relationship between their study engagement and career-choice motivation.

Lastly, the current study used both quantitative and qualitative approaches to explore the impacts of a funding policy on Chinese pre-service teachers' initial motivation to choose teaching profession and their current study engagement in teaching programmes. As it is not a longitudinal approach, those pre-service teachers' future career development cannot be followed up. Similar to what the existing literature in the research field of teacher motivation suggested (e.g., Richardson & Watt, 2010; Richardson & Watt, 2014), future studies are recommended to apply longitudinal approaches to explore the relationship between pre-service teachers' career-choice motivation and their future career development, and to track the same group of policy-funded pre-service teachers in order to examine whether the policy aims are achieved or not in the long run.

6.8 Conclusion

Overall, the Government-Funded Teacher Education Policy has no negative impacts on career-choice motivation and study engagement of Chinese pre-service teachers. This could be interesting as it indicates that the policy terms, which emphasise extrinsic benefits of the teaching profession and confine professional development of pre-service teachers, turn out to

have no significant side effects on pre-service teachers' motivation to choose teaching profession and their study engagement during teacher training. This finding, together with the relatively high intrinsic career-choice motivation of policy-funded pre-service teachers, seems to suggest that the aim of the funding policy – to build a high-quality and stable teaching force – is likely to be achieved. Nevertheless, during teacher training, the policy-funded pre-service teachers appear to experience a decline in their intrinsic career-choice motivation and study engagement. This indicates the necessity to reform the funding policy and the teacher education in China. Future studies are recommended to take longitudinal approaches to examine the impacts of the funding policy on the policy-funded pre-service teachers' professional development and to evaluate the success of the policy in achieving its goals.

The main finding of this study seems to be supported by the Expectancy-Value theory which argues that individuals' expectancy for success in completing a task and the task-specific value perceived by them directly predict their achievement-related choice and performance. The restrictive terms of the funding policy could dampen some policy-funded pre-service teachers' expectancy for success in the teaching profession; while the encouraging terms are likely to add extra value to the profession. As shown in the narrative stories, these different terms in the funding policy could exert opposite impacts on the choice of teaching and study engagement for different policy-funded pre-service teachers. Therefore, for the whole policy-funded pre-service teachers, these opposite impacts could counteract each other, and thus concur with the quantitative finding that the funding policy has "no negative impacts" on their motivation to choose a teaching profession (achievement-related choice) and their study engagement (performance).

Meanwhile, the decline of intrinsic career-choice motivation for policy-funded pre-service teachers could be supported by the theory of the Undermining Effect of Extrinsic Reward. The encouraging policy terms, such as "tuition-free teacher education", "guaranteed teaching job", and "opportunity for professional postgraduate study", seem to meet the criteria of extrinsic rewards in the theory, and thus could produce undermining effects on pre-service teachers' intrinsic motivation to choose teaching profession. However, as the decline of intrinsic motivation does not reach the statistically significant level in this study, potential undermining effects of these encouraging policy terms need future studies to further examine.

Moreover, findings of this study could inform the research area of teacher motivation. Six types of career-choice motivation for Chinese pre-service teachers are identified and referred to as, in their decreasing importance order, *Teacher Influence, Job Advantages (Extrinsic Motivation), Social Value (Altruistic Motivation), Personal Interest (Intrinsic Motivation), Other's Suggestion,* and *Fallback Career*. Based on two existing models, a new classification model of teacher motivation is proposed to understand the relationship among the six motivation types. The ranking of these motivation types, together with demographic information of participants, argues for the view that sociocultural contexts could impact pre-service teachers' career-choice motivation: those from high-income countries are more likely to emphasise altruistic and intrinsic motivations to teach, while those from low-income regions tend to emphasise extrinsic teaching career choice motivation. Chinese pre-service teachers' altruistic and intrinsic career-choice motivations are positively correlated with their study engagement in teacher-training programmes; however, it is difficult to use their career-choice motivations to accurately predict their study engagement.

In addition, findings reported in the study describe some characteristics of Chinese pre-service teachers. They are dominantly female, young, and Han people from rural-area families with low income. Policy-funded pre-service teachers from rural-area families tend to have a higher level of study engagement than their counterparts from urban families. Female policy-funded pre-service teachers place a higher emphasis on *Teacher Influence, Job Advantages, Social Value,* and *Personal Interest* as career-choice motivations; while their male counterparts are more likely to choose teaching profession as a fallback career. As for their perceptions about teaching, the policy-funded pre-service teachers tend to perceive teaching profession as a high demanding and low rewarding career; however, they seem to be generally satisfied with the choice of teaching profession. This seemingly contradictory finding could reflect the current situation of teaching profession in China and the impacts of the funding policy on the choice of teaching. Finally, according to their satisfaction levels towards the funding policy, the policy-funded pre-service teachers could be divided into three groups. The low satisfaction group are more likely to choose teaching as a fallback career and have a generally lower study engagement in teacher-training programmes than the other two groups with higher policy satisfaction levels.

Findings from this study and the theorisation of these findings are situation specific; however, that still allows them to be considered in other international contexts outside of China. Firstly, the relationship between career-choice motivation and study engagement found in this study

can offer one way of examining and understanding motivation and study engagement that could be considered and adapted in other contexts. As found in the data of this study, "personal interest" and "social value" were the two types of career-choice motivation that were significantly and positively correlated with study engagement. It would be interesting to examine whether such correlation would arise in other national contexts. Moreover, it might also be interesting to explore if the FIT-Choice scale, or a similar instrument, might be useful in the selection of high-quality candidates into teacher education programmes. Lastly, there are other countries that utilise some form of selective funding to attract and retain teachers in rural areas (e.g., Monk, 2007; Sclafani, 2010), from minority groups (e.g., Kearney-Gissendaner, 2013; Phillion, Hue, & Wang, 2011) or with specific subject expertise (e.g., Drew, 2011; Freeman, Marginson, & Tytler, 2015). While localised in China, this study suggests such incentives may have less desirable, as well as the desired, results. Before countries widely adopt such policies it would be useful to research which elements are effective in motivating and retaining teachers and which ones may undermine the intensions of such policies.

The overarching finding of the study indicates no negative impact of the funding policy on Chinese pre-service teachers' career-choice motivation and study engagement, but it does suggest some areas with further research findings would be useful in order to develop fine-tuned improvements. In addition, this investigation has examined the nature of Chinese pre-service teachers' motivation to teach and study engagement during teacher preparation, and offered a platform to better inform policy makers and universities in harnessing the existing career-choice motivations and study engagement capacity of pre-service teachers.

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APPENDICES

Appendix 1: Ethical Approval Letter

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

HUMAN ETHICS COMMITTEE
Secretary, Lynda Griffioen

Ref: 2012/50/ERHEC

7 January 2013

Yi Liu
School of Literacies & Arts in Education
UNIVERSITY OF CANTERBURY

Dear Yi

Thank you for providing the revised documents in support of your application to the Educational Research Human Ethics Committee. I am very pleased to inform you that your research proposal "Career-choice motivation and student engagement: investigating the impacts of GFTEP on pre-service teachers in P R China" has been granted ethical approval.

Please note that this approval is subject to the following:

- The incorporation of the amendments you have provided in your email of 14 December 2012.
- In the clause relating to focus group interviews in the information sheets, please include the following: "Participants in focus group interviews will be asked to treat what is shared in confidence".

Should circumstances relevant to this current application change you are required to reapply for ethical approval.

If you have any questions regarding this approval, please let me know.

We wish you well for your research.

Yours sincerely

Nicola Surtees
Chair
Educational Research Human Ethics Committee

"Please note that Ethical Approval and/or Clearance relates only to the ethical elements of the relationship between the researcher, research participants and other stakeholders. The granting of approval or clearance by the Ethical Clearance Committee should not be interpreted as comment on the methodology, legality, value or any other matters relating to this research."

Appendix 2: Application Letter for Data Collection in P.R. China

I understand that, normally, CSC funded students can come back to China for one month per year. However, both of my supervisors believe that one month is too short for me to complete the data-collection tasks and 4 months in one year are the minimum requirement considering the complexity of the data collection in the research. I am therefore applying to you for returning to and staying in China for 4 months (probably from 1 March 2013 to 30 June 2013) to collect data for my PhD research in order to ensure that my PhD studies at University of Canterbury are successful.

Yours sincerely,

Signature: Yi Liu

Date: 14 November 2012

Yi Liu
PhD Candidate
College of Education
University of Canterbury

Opinions from senior supervisor:

I support the application for returning to China for 4 months in 2013.

Signature:

Date: 15/11/2012

Professor John Everatt
Head of School of Literacies and Arts in Education
College of Education
University of Canterbury

Appendix 2: Continued

Opinions from co-supervisor:

Yi Liu has developed a sound doctoral research project that should have relevance to the development of educational policy in China & contribute to international debates on similar topics. It is important for him to be in the field for a sustained period in order to complete surveys and interviews. I think 4 months would be an appropriate time.

I write this recommendation as Liu's supervisor, who knows his project & as Dean with an overview of what can be asked from P.h.D students across the wider field.

Signature:

Date:

15.11.12.

Professor Janinka Greenwood

Associate Dean of Postgraduate Studies in Education

College of Education

University of Canterbury

Opinions from University of Canterbury (*please tick one and sign your name and date):*

☑ I on behalf of University of Canterbury agree that Yi Liu return to China to do data collection for his PhD research for four months in year 2013.

☐ I on behalf of University of Canterbury do not agree because_____

Mr Liu is progressing well with his Ph.D. studies. I fully support his request to return to China for data collection - this is a well thought out academic plan

Signature:

Date: 19 November 2012

Professor Steve Weaver

Assistant Vice-Chancellor (Research)

University of Canterbury

UNIVERSITY OF CANTERBURY

Te Whare Wānanga o Waitaha

CHRISTCHURCH NEW ZEALAND

Appendix 3: Consent Forms from Three Universities

This will be translated into Chinese.

College of Education

School of Education Studies and Human Development

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Project Title: "Career-choice Motivation and Student Engagement: Investigating the Impacts of Government-funded Teacher Education Policy on Pre-service Teachers in P.R. China"

Consent Form for Vice-President of SWU

I understand the aims and purposes of the research study undertaken by Yi Liu (the researcher). The study project has been explained to me and I understand all the information on the letter given to me. I understand what will be required of me if I agree to confirm my permission for access to undergraduates and staff (the participants) of (SWU).

I understand that my voluntary involvement will include permitting Yi Liu to access to his participants in SWU to carry out this research, which will consist of a questionnaire survey lasting for approximately 25 minutes for about 400 undergraduates in SWU, focus group interviews lasting for approximately 45 minutes for each of those undergraduates who volunteer to participate in further interviews after completing the questionnaire, and individual interviews with about 8 staff from SWU lasting for approximately 45 minutes for each of them.

I understand that letters of consent will be forwarded to all participants and the data collection has been scheduled for the period between March 2013 and June 2013.

I understand that all information collected will be treated with strictest confidence and securely stored. No participant in the study areas will be mentioned in the thesis or subsequent reports and articles by name that they can be identified.

Appendix 3: Continued

This will be translated into Chinese.

I understand that will be anonymous in publications and will be offered a summary of the results of this project by the researcher through my email when it is completed. I have provided my email details below for this.

I have had all questions answered to my satisfaction. I have read the information letter and consent form. I understand that if I require further information I can contact Yi Liu. If I have any complaints, I can contact John Everatt or the Chair of the University of Canterbury Education Research Human Ethics Committee. By signing below, I agree to confirm my permission for Yi Liu's access to undergraduates and staff.

Name: Jin Yule

Vice-President of SWU

Signature: 金玉乐 Jin Yule

Date: 06-05-2013

Please return this completed consent form to Yi Liu by hand or in envelop provided by 30 June 2013.

This will be translated into Chinese.

College of Education

School of Education Studies and Human Development

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Project Title: "Career-choice Motivation and Student Engagement: Investigating the Impacts of Government-funded Teacher Education Policy on Pre-service Teachers in P.R. China"

Consent Form for Deputy Dean of HNNU

I understand the aims and purposes of the research study undertaken by Yi Liu (the researcher). The study project has been explained to me and I understand all the information on the letter given to me. I understand what will be required of me if I agree to confirm my permission for access to undergraduates (the participants) of (HNNU).

I understand that my voluntary involvement will include permitting Yi Liu to access to his participants in HNNU to carry out this research, which will consist of a questionnaire survey lasting for approximately 25 minutes for about 240 undergraduates in HNNU.

I understand that letters of consent will be forwarded to all participants and the data collection has been scheduled for the period between March 2013 and June 2013.

I understand that all information collected will be treated with strictest confidence and securely stored. No participant in the study areas will be mentioned in the thesis or subsequent reports and articles by name that they can be identified.

I understand that will be anonymous in publications and will be offered a summary of the results of this project by the researcher through my email when it is completed. I have provided my email details below for this.

This will be translated into Chinese.

I have had all questions answered to my satisfaction. I have read the information letter and consent form. I understand that if I require further information I can contact Yi Liu. If I have any complaints, I can contact John Everatt or the Chair of the University of Canterbury Education Research Human Ethics Committee. By signing below, I agree to confirm my permission for access to undergraduates.

Name: Zhang Chuansui

Deputy Dean of School of Education Science at HNNU

Signature: 张传燧 ZhangChuan-Sui

Date: 2013.5.16

Please return this completed consent form to Yi Liu by hand or in envelop provided by 30 June 2013.

Appendix 3: Continued

This will be translated into Chinese.

College of Education

School of Education Studies and Human Development

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Project Title: "Career-choice Motivation and Student Engagement: Investigating the Impacts of Government-funded Teacher Education Policy on Pre-service Teachers in P.R. China"

Consent Form for Dean of NJNU

I understand the aims and purposes of the research study undertaken by Yi Liu (the researcher). The study project has been explained to me and I understand all the information on the letter given to me. I understand what will be required of me if I agree to confirm my permission for access to undergraduates (the participants) of (NJNU).

I understand that my voluntary involvement will include permitting Yi Liu to access to his participants in NJNU to carry out this research, which will consist of a questionnaire survey lasting for approximately 25 minutes for about 200 undergraduates in NJNU.

I understand that letters of consent will be forwarded to all participants and the data collection has been scheduled for the period between March 2013 and June 2013.

I understand that all information collected will be treated with strictest confidence and securely stored. No participant in the study areas will be mentioned in the thesis or subsequent reports and articles by name that they can be identified.

I understand that will be anonymous in publications and will be offered a summary of the results of this project by the researcher through my email when it is completed. I have provided my email details below for this.

I have had all questions answered to my satisfaction. I have read the information letter and consent form. I understand that if I require further information I can contact Yi Liu. If I have any complaints, I can contact John Everatt or the Chair of the University of Canterbury Education Research Human Ethics Committee. By signing below, I agree to confirm my permission for access to undergraduates.

Name: Liu Yihe

Dean of College of Computer Science

Signature: (Liu Yihe)

Date: 2013-6-8.

Please return this completed consent form to Yi Liu by hand or in envelop provided by 30 June 2013.

Appendix 4: Permission Letters to Use the FIT-Choice Scale

From: Helen Watt
Sent: Tuesday, 18 September 2012 5:18 p.m.
To: Yi Liu
Cc: Paul Richardson; John Everatt; Janinka Greenwood
Subject: Re: Ask for your permission to use the FIT-Choice Scale in my PhD study

Dear Louis,

You are welcome to use our measures. You may also be interested to include the PECDA (see Watt & Richardson 2008). You can read more relevant publications at: www.fitchoice org. Richardson & Watt 2006 contains an easy to read Table for the FIT-Choice scale with items listed beneath target latent constructs, this is also the reference for our sample description. We have attached a Chinese translation which may be helpful for you (and facilitate comparisons), as well as to read all articles in our recently published s.i. in APJTE in which attached article appeared - particularly the Introduction summary. We aim to keep in contact with everyone using our scales towards future possible collaborations and would be grateful for you to keep us updated with your study.

All best wishes,

Helen & Paul

HELEN M. G. WATT |PhD, Associate Professor, Australian Research Fellow
Faculty of Education, MONASH UNIVERSITY

From: Paul Richardson
Sent: Wednesday, 19 September 2012 12:11 a.m.
To: Yi Liu
Cc: Helen Watt; John Everatt; Janinka Greenwood
Subject: Re: Ask for your permission to use the FIT-Choice Scale in my PhD study

Dear Yi Liu,

Thank you for your email.

We are pleased to offer you permission to use the scale. We would suggest that before you go to the trouble of translating the scales into Mandarin you review the most recent issue of the Asia Pacific Journal of Teacher Education where there is a copy of the scale in Mandarin in the exact format we would suggest you use (please see the pdf file attached to this email). It is important for your research, particularly if you wish to make comparisons beyond your

sample, that you use the whole scale without dropping items before it is completed by the participants. You may wish to add new questions or scales.

Please keep in touch with us regarding your work as it develops and the findings of your study.

Best wishes with your research,

Paul & Helen

From: Emily Lin
Sent: Friday, 3 May 2013 11:31 a.m.
To: Louis Liu
Subject: Re: Using the FIT-Choice scale translated by you in my study

Dear Yi Liu,

Good luck on your study! I am looking forward to hearing about your results!
Best,

Emily Lin, Ph.D.
Director of Teacher Education
Associate Professor
College of Education
University of Nevada, Las Vegas
Past Co-Editor, Journal of Teacher Education
President, Nevada Association of Colleges of Teacher Education (NVACTE)

Appendix 5: Official Document of the Government-Funded Teacher Education Policy (the GFTEP, Original Chinese and English Translation by Present Study)

(Accessed on 24 July 2014 from the website of the Central People's Government of the People's Republic of China http://www.gov.cn/zwgk/2007-05/14/content_614039.htm)

国务院办公厅转发教育部等部门关于教育部直属师范大学师范生免费教育实施办法（试行）的通知

国办发〔2007〕34 号

各省、自治区、直辖市人民政府，国务院各部委、各直属机构：

教育部、财政部、中央编办、人事部《教育部直属师范大学师范生免费教育实施办法（试行）》已经国务院同意，现转发给你们，请认真贯彻执行。

国务院办公厅

二○○七年五月九日

教育部直属师范大学师范生免费教育实施办法（试行）

教育部　财政部　人事部　中央编办

国务院决定在教育部直属师范大学实行师范生免费教育。采取这一重大举措，就是要进一步形成尊师重教的浓厚氛围，让教育成为全社会最受尊重的事业；就是要培养大批优秀的教师；就是要提倡教育家办学，鼓励更多的优秀青年终身做教育工作者。现就教育部直属师范大学实行师范生免费教育，制定本实施办法。

一、从 2007 年秋季入学的新生起，在北京师范大学、华东师范大学、东北师范大学、华中师范大学、陕西师范大学和西南大学六所部属师范大学实行师范生免费教育。要通过部属师范大学的试点，积累经验，建立制度，为培养造就大批优秀教师和教育家奠定基础。

二、免费教育师范生在校学习期间免除学费，免缴住宿费，并补助生活费。所需经费由中央财政安排。

三、部属师范大学师范专业实行提前批次录取，择优选拔热爱教育事业，有志于长期从教、终身从教的优秀高中毕业生。

四、免费师范生入学前与学校和生源所在地省级教育行政部门签订协议，承诺毕业

Appendix 5: Continued

后从事中小学教育十年以上。到城镇学校工作的免费师范毕业生，应先到农村义务教育学校任教服务二年。国家鼓励免费师范毕业生长期从教、终身从教。

免费师范毕业生未按协议从事中小学教育工作的，要按规定退还已享受的免费教育费用并缴纳违约金。省级教育行政部门负责履约管理，并建立免费师范生的诚信档案。确有特殊原因不能履行协议的，需报经省级教育行政部门批准。

五、免费师范毕业生一般回生源所在省份中小学任教。有关省级政府要统筹规划，做好接收免费师范毕业生的各项工作，确保每一位到中小学校任教的免费师范毕业生有编有岗；省级教育行政部门负责组织用人学校与毕业生在需求岗位范围内进行双向选择，切实为每一位毕业生安排落实任教学校。各地应先用自然减员编制指标或采取先进后出的办法安排免费师范毕业生，必要时接收地省级政府可设立专项周转编制。

免费师范毕业生在协议规定服务期内，可在学校间流动或从事教育管理工作。

六、有志从教并符合条件的非师范专业优秀学生，在入学二年内，可在教育部和学校核定的计划内转入师范专业，并由学校按标准返还学费、住宿费，补发生活费补助。免费师范生可按照学校规定在师范专业范围内进行二次专业选择。

七、免费师范生毕业前及在协议规定服务期内，一般不得报考脱产研究生。

免费师范毕业生经考核符合要求的，可录取为教育硕士专业学位研究生，在职学习专业课程，任教考核合格并通过论文答辩的，颁发硕士研究生毕业证书和教育硕士专业学位证书。

八、部属师范大学要抓住实行师范生免费教育的良好机遇，围绕培养造就优秀教师和教育家的目标，大力推进教师教育改革，特别要根据基础教育发展和课程改革的要求，精心制订教育培养方案。要安排名师给免费师范生授课，选派高水平教师担任教师教育课程教学，建立师范生培养导师制度。按照学为人师、行为世范的要求，加强师范生师德教育。强化实践教学环节，完善师范生在校期间到中小学实习半年的制度。要通过培养教育，使学生树立先进的教育理念，热爱教育事业，具有长期从教的职业理想，为将来成为优秀教师和教育专家打下牢固的根基。

九、要把培养优秀中小学教师的工作作为评价师范大学办学水平的重要指标。对在实施师范生免费教育工作中做出积极贡献的部属师范大学给予政策倾斜，进一步加大对师范教育的支持力度。

Appendix 5: Continued

十、各有关地区、部门和学校要深刻认识部属师范大学实行师范生免费教育重大而深远的意义和影响，切实负起责任，扎实工作，保证这项重大举措的顺利实施。各级政府要采取有力措施，对长期从事中小学教育的免费师范毕业生给予积极的鼓励和支持。中央财政对接收免费师范毕业生的中西部地区给予一定的支持。地方政府和农村学校要为免费师范毕业生到农村任教服务提供必要的工作生活条件和周转住房。教育部、财政部、人事部、中央编办应根据本办法，结合各地实际，细化实施办法，把师范生免费教育各环节各方面的工作抓紧抓实抓好。

English Translation by Current Study

Official Circular on Implementing the Government-Funded Teacher Education Policy (Trial) in Teacher-Training Universities Directly under the Ministry of Education of the People's Republic of China

Proposed by the Ministry of Education and Other Departments and Forwarded by the General Office of the State Council

[2007] No.34

To the governments of each province, autonomous region, and municipality directly under the Central Government, to the agencies of the State Council and the departments directly under the State Council:

Implementation of the Government-Funded Teacher Education Policy (Trial) in the six teacher-training universities under the Ministry of Education, which is proposed by the Ministry of Education, the Ministry of Finance, the Ministry of Personnel, and the Central Bian Zhi Office, has already obtained permission from the State Council. It is hereby distributed to you; please ensure it is implemented appropriately.

The General Office of the State Council

9 May 2007

Appendix 5: Continued

The Government-Funded Teacher Education Policy (Trial) in Teacher-Training Universities Directly under Ministry of Education of the People's Republic of China

(Proposed by the Ministry of Education, the Ministry of Finance, the Ministry of Personnel, and the Central Bian Zhi Office)

To carry out the Government-Funded Teacher Education Policy (GFTEP) in the six teacher-training universities directly subordinated to Ministry of Education is an important decision made by the Chinese State Council. The purposes of the policy are: to further create an environment of respecting teachers and emphasising education in order to make teaching the most respectable career in the society, to train a large number of high-quality teachers, to advocate that educators run schools, and to encourage more youth to do lifelong education-related work. The following are the contents and terms of this policy:

1. From September 2007, the GFTEP will have been implemented as a trial in the six national top teacher-training universities subordinated to the Ministry of Education, namely, Beijing Normal University, East China Normal University, Northeast Normal University, Central China Normal University, Shaanxi Normal University, and Southwest University. Through this trial, experiences are expected to be gained; systems are expected to be established; and finally the foundation for cultivating a large number of excellent teachers and educators can be built.

2. The Central Government pays all the tuition and accommodation fees for the policy-funded pre-service teachers (PFPTs) and subsidise the cost of living at university for them.

3. The teacher-training programmes of the six universities implementing the funding policy have the priority to recruit excellent high-school graduates who are passionate about education and determined to teach for a lifelong time.

4. Before they enrol in the six universities, each of the PFPTs has to sign a contract with the university where he or she will study and the Educational Executive Department of the province where he or she comes from, to promise that he or she will take teaching as a career for at least 10 years. The PFPTs will have to teach and serve in rural-area schools for 2 years if they work in city schools. The Chinese governments encourage the PFPTs to teach for a long and even life-long time.

Appendix 5: Continued

The policy-funded graduates who do not comply with the contract to teach in a primary or secondary school will have to pay all the fees back and be fined. The Educational Executive Department of Province is responsible for managing the contracts and establishing a credit profile for each policy-funded student. The PFPTs who do have special and objective reasons to breach the contract should get the permission from the Educational Executive Department of Province.

5. In general, all the policy-funded graduates should teach in a primary or secondary school located in the province where they come from. The provincial government should ensure that every graduate who obeys the contract can get a teaching job in a primary or secondary school. The Educational Executive Department of each province takes the responsibility to organize job fairs where the schools and the graduates can know and choose each other. Moreover, local governments can take flexible measures to make sure that all the PFPTs can find a teaching job.

During the period of teaching services, the policy-funded graduates can transfer among schools and pursue educational management posts.

6. Excellent non-education undergraduates who determine to become a teacher in the future can transfer to the government-funded teacher education programmes within their first two years of study, and if they make it, they will be retrospectively funded. According to the requirements of the universities, the PFPTs can make a second choice of their majors within the available teacher-training programmes.

7. In principle, the PFPTs are forbidden to take examinations to become academic postgraduates during their undergraduate studies and their teaching services periods.

However, the policy-funded graduates who meet the national requirements can be enrolled as non-academic postgraduates. They can complete the courses through remote learning while teaching at schools. If their teaching services are qualified and if they have successfully passed the thesis exams, they will be awarded with a postgraduate diploma and a non-academic master degree.

8. The six teacher-training universities should regard the GFTEP as a good opportunity to improve teacher education, especially teacher-training curriculum so as to cater for the basic

education reforms and to cultivate high-quality teachers and educators. To be specific, the measures could include: to create a system for appointing high-quality teacher-educators as tutors for PFPTs, to reinforce moral education for PFPTs, and to improve the half-year internship. Through teacher preparation, the PFPTs are expected to be equipped with the modern educational concepts, the love for teaching career, and the willingness to teach for a long time, so that they can become high-quality teachers or even educational experts.

9. The quality of school teachers graduated from each of the six teacher-training universities should be seen as a valid indicator of the university's contribution. For those universities who made a significant contribution to educating the PFPTs, the central government will give them more political and financial supports.

10. All the local governments, departments, and schools should fully understand the significance and the far-reaching effects of the funding policy. They should take the responsibility and work hard to ensure that the policy can be successfully implemented. Different levels of governments should take effective measures to encourage and support the policy-funded graduates who teach in a primary or secondary school for a long time. The central financial departments will support schools in the middle and the west areas of China where the policy-funded graduates are doing teaching services. Local governments and rural schools should provide basic living conditions and temporary houses to the policy-funded graduates who teach and serve there. The Ministry of Education, the Ministry of Finance, the Ministry of Personnel, and the Central Office for BianZhi should fine-tune the approaches to carry out this funding policy based on the aims of the policy and the specific requirements of different areas, in order to ensure that every stage of the implementation will go successfully.

Appendix 6: Demographic Information Developed by Present Study for the Survey Questionnaire (Chinese and English Translation)

第一部分：个人基本情况（请在相应选项代码上划“√”或在横线上填写信息）

A1．性别：　　（1）男　　（2）女

A2．民族：　　（1）汉族　　（2）少数民族

A3．生源地：　　（1）农村　　（2）城镇

A4．年级：　　（1）大一　　（2）大二　　（3）大三　　（4）大四

A5．您来自_____省/市，年龄_____岁，家庭收入大约为_____元/月

A6．您的高考分数为_____分，属于_____科（文、理或综合）_____本（一、二或三），该分数超过当年相应科类、批次的省控制分数线_____分，现就读于_____大学/学院

A7．大学本科毕业后，您任教的学校最可能为：

（1）幼儿园（2）小学（3）初中（4）高中（5）大学（6）不确定

A8．大学本科毕业后，您任教的科目最可能为：

（1）语文　（2）数学　（3）外语　（4）政治　（5）历史　（6）地理

（7）物理　（8）化学　（9）生物　（10）艺体类　（11）其他科类

（12）不确定

注：如果您愿意参加本研究的后续访谈，请填写你的联系方式:

QQ 号：_____　　电子邮箱：_____

Appendix 6: Continued

Part A: Personal Basic Information (Please tick '√'or fill the gap)

A1. Gender: (1) Male (2) Female

A2. Ethnicity: (1) Han People (2) Ethnic Minorities

A3. Hometown: (1) Rural Area (2) Urban Area

A4. Year of Study: (1) First Year (2)Forth (Last) Year

A5. I come from ___ Province; I am ___ years old; my family income is around ___ RMB per month.

A6. My scores of the National College Entrance Examination are ___, which belongs to ___ discipline (Arts, Science or Combined) ___ Level (First, Second or Third). My scores surpass the National College Cut-off Score by ___ points, and now I am studying at ___ University.

A7. After graduation from the university, which of the following educational institutions will you probably go to teach?

(1) Kindergarten (2) Primary School (3) Junior High School (4) Senior High School (5) University (6) I am not sure

A8. After graduation from the university, which of the following subjects will you probably go to teach?

(1) Chinese (2) Math (3) Foreign language (4) Politics (5) History (6) Geography

(7) Physics (8) Chemistry (9) Biology (10) Arts and PE (11) Other subjects

(12) I am not sure

Note:

If you would like to participate in our follow-up interviews, please write down your contact information here: QQ Account_____ Email Address: _____

Appendix 7: The Factors Influencing Teaching Choice Scale (FIT-Choice Scale, Original English and Chinese Translation)

(Copyright © Watt, H. M. G. & Richardson, P. W.)

(Chinese version originally translated by Lin, E. etc. and adapted by present study)

Higher-order factor	Factor	Item#	Original English	Chinese Translation	Anchors
			Part B: Career-choice Motivation (The CCM Scale)	第二部分：职业选择的动机 (职业选择动机问卷)	1(not at all important), to 7(extremely important)
			Item stem: 'I chose to become a teacher because…'	我选择成为教师，因为……	1（完全不重要），7（极为重要）
N/A	Ability	B5	I have the qualities of a good teacher	我有当一名好老师的品质	
		B17	I have good teaching skills	我的教学技巧很好	
		B33	Teaching is a career suited to my abilities	我的能力适合教书	
N/A	Intrinsic career value	B1	I am interested in teaching	我对教书感兴趣	
		B7	I've always wanted to be a teacher	我一直就想当老师	
		B11	I like teaching	我喜欢教书	
N/A	Fallback career	B10	I was unsure of what career I wanted	我还没有确定我以后的职业	
		B27	I was not accepted into my first-choice career	我没能做到我最想要做到的职业	
		B35	I chose teaching as a last-resort career	我没有别的选择只能当老师	
Personal utility value	Job security	B13	Teaching will offer a steady career path	教书是个稳定的职业	

		B23	Teaching will provide a reliable income	教书可以带来稳定的收入
		B30	Teaching will be a secure job	教书是一个有保障的工作
	Time for family	B2	Part-time teaching could allow more family time	部分时间教学让教师有比较多的时间跟家人相处
		B4	As a teacher I will have lengthy holidays	当老师有比较长的假日
		B14	Teaching hours will fit with the responsibilities of having a family	做老师的上班时间有利于我承担家庭责任
		B16	As a teacher I will have a short working day	当老师上班的时间比较短
		B24	School holidays will fit in with family commitments	学校假期有利于我承担家庭责任
	Job transferability	B8	Teaching will be a useful job for me to have when travelling	教书能使我有机会在其他城市或国家工作
		B19	A teaching qualification is recognised everywhere	老师资格到处都认可
		B34	A teaching job will allow me to choose where I wish to live	教书工作可以让我选择我想住的地方
Social utility value	Shape future of children/ adolescents	B9	Teaching will allow me to shape child/adolescent values	教书能让我有机会帮助青少年树立正确价值观
		B20	Teaching will allow me to influence the next generation	教书可以让我对下一代产生影响
		B37	Teaching will allow me to have an impact on	教书可以让

			children/adolescents	我有机会对青少年产生影响
	Enhance social equity	B28	Teaching will allow me to raise the ambitions of underprivileged youth	教书可以让我帮助弱势青少年建立远大的理想
		B36	Teaching will allow me to benefit the socially disadvantaged	教书可以让我为社会上的弱势群体提供服务
		B38	Teaching will allow me to work against social disadvantage	教书可以让我改善弱势群体的社会环境
	Make social contribution	B6	Teaching allows me to provide a service to society	教学可以让我服务于社会
		B18	Teachers make a worthwhile social contribution	当老师对社会有贡献
		B26	Teaching enables me to ‘give back’ to society	教学可以让我回馈于社会
	Work with children/adolescents	B12	I want a job that involves working with children/adolescents	我喜欢与小孩及青少年有接触 的工作
		B22	I want to work in a child/adolescent-centred environment	我想在与儿童/青少年有接触的环境中工作
		B29	I like working with children/adolescents	我喜欢做和儿童/青少年有关的工作
N/A	Prior teaching and learning experience	B15	I have had inspirational teachers	我曾经有过能鼓动人心的老师
		B25	I have had good teachers as role models	我有遇过一些成为我榜样的好老师
		B31	I have had positive learning experiences	我有好的读

				书经历	
N/A	Social influences	B3	My friends think I should become a teacher	我的朋友认为我应该当老师	
		B21	My family think I should become a teacher	我家人认为我应该当老师	
		B32	People I've worked with think I should become a teacher	和我一起学习的同学觉得我应该当老师	
			Part C: Perceptions about Teaching (The PAT Scale)	第三部分：对教学的观念（教学观念问卷）	1 (*not at all*), to 7 (*extremely*)
Task demand	Expertise	C9	Do you think teaching requires high levels of expert knowledge?	我认为教学需要高深的专业知识。	1（完全不同意），7（极为同意）
		C13	Do you think teachers need high levels of technical knowledge?	我认为老师需要高级的技术知识。	
		C14	Do you think teachers need highly specialised knowledge?	我认为老师需要高度专业化的知识。	
	Difficulty	C2	Do you think teachers have a heavy workload?	我认为老师的工作量重。	
		C6	Do you think teaching is emotionally demanding?	我认为教书对老师的情绪压力大。	
		C10	Do you think teaching is hard work?	我认为教书是一项辛苦的工作。	
Task return	Social status	C4	Do you believe teachers are perceived as professionals?	我认为老师是专业人士。	
		C5	Do you believe teaching is a well-	我认为老师	

			respected career?	被社会所尊重。	
		C7	Do you believe teaching is perceived as a high-status occupation?	我认为教书工作有很高的职业地位。	
		C8	Do you think teachers feel valued by society?	我相信教书是个受社会器重的职业。	
		C11	Do you think teachers have high morale?	我认为教书的职位有很高的社会地位。	
		C12	Do you think teachers feel their occupation has high social status?	我认为老师觉得她们的职业有很高的社会地位。	
	Salary	C1	Do you think teaching is well paid?	我认为教学的待遇好。	
		C3	Do you think teachers earn a good salary?	我认为老师的工资不错。	
			Part D: Decision to Become a Teacher (The DBT Scale)	第四部分：做教师的决定（职业决定问卷）	1 (*not at all*), to 7 (*extremely*)
N/A	Social dissuasion	D2	Were you encouraged to pursue careers other than teaching?	别人鼓励我从事教学以外的职业。	1（完全不同意），7（极为同意）
		D4	Did others tell you teaching was not a good career choice?	别人告诉我教学不是个好职业。	
		D6	Did others influence you to consider careers other than teaching?	别人建议我考虑教学以外的职业。	
N/A	Satisfaction with choice	D1	How carefully have you thought about becoming a teacher?	我对成为老师慎重地考虑过。	
		D3	How satisfied are you	我对选择成	

		with your choice of becoming a teacher?	为一名老师是满意的。
	D5	How happy are you with your decision to become a teacher?	我对决定成为一名老师是高兴的。

Appendix 8: Improvements Made by Present Study on Chinese Translation of the FIT-Choice Scale

Item	Original English (and English if adapted according to Chinese translation in present study)	Original Chinese translation by Lin, E. etc.	Chinese translation in present study	Reasons for making changes
B2	Part-time teaching could allow more family time.	**当兼职教师让我**有比较多的时间跟家人相处。	**部分时间教学让教师**有比较多的时间跟家人相处。	The original Chinese translation is not applicable to the targeted participants. The meaning of "being a part time teacher" in the original Chinese translation was changed into "teaching (as a full time teacher) in part of the day" in present study as they will become full-time teachers.
B8	Teaching will be a useful job for me to have when travelling.	教书能使我机会在其他城市或国家工作。	教书能使我**有**机会在其他城市或国家工作。	The verb is missed in the original Chinese.
B9	Teaching will allow me to shape child/adolescent values	教书能让我有机会帮助青少年**树立价值观**。	教书能让我有机会帮助青少年**树立正确价值观**。	The original Chinese is not fit for idiomatic collocation in Chinese.
B27	I was not accepted into my first-choice career	我没能做到我最想要做到的**工作**。	我没能做到我最想要做到的**职业**。	The original Chinese fails to keep conformity with the Chinese translation of "career" throughout the questionnaire.
B32	People I've worked with think I should become a teacher	和我一起**工作的同事**觉得我应该当老师。	和我一起**学习的同学**觉得我应该当老师。	The original Chinese translation is not applicable to the targeted participants because they are university students who have only students to study with.

B37	Teaching will allow me to have an impact on children/adolescents	教书可以让我机会对青少年产生影响。	教书可以让我**有**机会对青少年产生影响。	The verb is missed in the original Chinese.
C1	Do you think teaching is well paid? (**I think teaching is well paid.**)	**您**认为**教学的收入**好**吗？**	**我**认为**教学的待遇**好**。**	(1) The original Chinese is not fit for idiomatic collocation in Chinese; (2) The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
C2	Do you think teachers have a heavy workload? (**I think teachers have a heavy workload.**)	**您**认为老师的工作量**很**重**吗？**	**我**认为老师的工作量重**。**	(1)The adverb of degree in the original Chinese is unnecessary as it is not included in the original English; (2) The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
C3	Do you think teachers earn a good salary? (**I think teachers earn a good salary.**)	**您**认为老师的工资不错**吗？**	**我**认为老师的工资不错**。**	The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
C4	Do you believe teachers are perceived as professionals? (**I believe teachers are perceived as professionals.**)	**您**认为老师是专业人士**吗？**	**我**认为老师是专业人士**。**	The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
C5	Do you believe teaching is a well-respected	**您认为教书的职位有很**	**我认为老师被社会所尊**	(1) The original Chinese translations of C5 and C11 were

	career? (**I believe teaching is a well-respected career.**)	**高的社会地位吗？**	**重。**	exchanged as they may be wrongly placed; (2) The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
C6	Do you think teaching is emotionally demanding? (**I think teaching is emotionally demanding.**)	**您**认为教书对老师的情绪压力**很**大**吗？**	**我**认为教书对老师的情绪压力大**。**	(1) The adverb of degree in the original Chinese is unnecessary as it is not included in the original English; (2) The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
C7	Do you believe teaching is perceived as a high-status occupation? (**I believe teaching is perceived as a high-status occupation.**)	**您**认为教书工作有很高的职业地位**？**	**我**认为教书工作有很高的职业地位。	The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
C8	Do you think teachers feel valued by society? (**I think teachers feel valued by society.**)	**您**相信教书是个受社会器重的职业**吗？**	**我**相信教书是个受社会器重的职业。	The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
C9	Do you think teaching requires high levels of expert knowledge? (**I think teaching requires high levels of expert knowledge.**)	**您**认为教学需要**高度的专业知识吗？**	**我**认为教学需要**高深的专业知识。**	(1) The original Chinese is not fit for idiomatic collocation in Chinese; (2) The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.

C10	Do you think teaching is hard work? (**I think teaching is hard work.**)	**您**认为教书是一项辛苦的工作**吗？**	**我**认为教书是一项辛苦的工作。	The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
C11	Do you think teachers have high morale? (**I think teachers have high morale.**)	**您认为老师被社会所尊重吗？**	**我认为教书的职位有很高的社会地位。**	(1) The original Chinese translations of C5 and C11 were exchanged as they may be wrongly placed; (2) The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
C12	Do you think teachers feel their occupation has high social status? (**I think teachers feel their occupation has high social status.**)	**您**认为老师觉得她们的职业有很高的社会地位**吗？**	**我**认为老师觉得她们的职业有很高的社会地位。	The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
C13	Do you think teachers need high levels of technical knowledge? (**I think teachers need high levels of technical knowledge.**)	**您**认为老师需要高级的**专业**技术知识**吗？**	**我**认为老师需要高级的技术知识。	(1) The meaning of the original Chinese overlaps with C14; (2) The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
C14	Do you think teachers need highly specialised knowledge? (**I think teachers need highly specialised knowledge.**)	**您**认为老师需要高度专业化的知识**吗？**	**我**认为老师需要高度专业化的知识。	The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
D1	How carefully have you	**您**对成为老	**我**对成为老	The second person and the

	thought about becoming a teacher? (**I have carefully thought about becoming a teacher.**)	师是否慎重的考虑过？	师慎重地考虑过。	interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
D2	Were you encouraged to pursue careers other than teaching? (**I was encouraged to pursue careers other than teaching.**)	**是否有人**鼓励您选择教学以外的职业？	**别人**鼓励我从事教学以外的职业。	The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
D3	How satisfied are you with your choice of becoming a teacher? (**I am satisfied with my choice of becoming a teacher.**)	**在多大程度上，您**对选择成为一名老师是满意的？	**我**对选择成为一名老师是满意的。	(1)The original Chinese partially repeats the instruction of section D; (2) The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
D4	Did others tell you teaching was not a good career choice? (**Others told me teaching was not a good career choice.**)	**是否有人**告诉您教学不是一个**很**好的职业？	**别人**告诉我教学不是个好职业。	(1) The adverb of degree in the original Chinese is unnecessary as it is not included in the original English; (2) The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.
D5	How happy are you with your decision to become a teacher? (**I am happy with my decision to become a teacher.**)	**您**对决定成为一名老师**在多大程度上**是高兴的？	**我**对决定成为一名老师是高兴的。	(1)The original Chinese partially repeats the instruction of section D; (2) The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.

D6	Did others influence you to consider careers other than teaching? (**Others influenced me to consider careers other than teaching.**)	**是否有人**建议您考虑教书之外的其他**行业？**	**别人**建议我考虑教学以外的**职业。**	(1) The original Chinese fails to keep conformity with the Chinese translation of "career" throughout the questionnaire; (2) The second person and the interrogative sentence pattern were changed into first person and assertive sentence pattern in order to keep conformity with other sections.

Note: The bold words indicate changes made by current study.

Appendix 9: Question Items Removed from the Study Engagement Scale after Pilot Study

Generally speaking, how much time in total do you spend on the following activities in one typical week?
1. Study, such as reading literature and journal articles and doing homework /lab experiments. Time spend on attending lectures should be excluded.
2. Part-time job on /outside campus.
3. Extracurricular activities in campus bulletin, student union, sports meeting, etc.
4. Chatting online, watching TV, playing computer games, surfing internet, etc.

Appendix 10: The Utrecht Work Engagement Scale for Students (UWES-S-17, Original English and Chinese Translation)

The following 17 statements are about how you feel when you are studying. Please read each statement carefully and decide if you ever feel this way about your study. If you have never had this feeling, fill the '1' in the brackets after the statement. If you have had this feeling, indicate how often you feel it by filling the number (from 2 to 7) that best describes how frequently you feel that way.

	Almost never	Rarely	Sometimes	Often	Very often	Always
1	2	3	4	5	6	7
Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

以下的*17* 个句子是有关您在学习中的感受的陈述。请仔细阅读，并确定您是否曾在学习中有过这样的感觉。如果您从未有过这样的感受，请在该题目左端的括号里填入“1”。如果曾有过这样的感受，请您在括号里填入相应最能够描述您的感受的频繁程度的数字（从2到7）。

	几乎没有过	很少	有时	经常	十分频繁	总是
1	2	3	4	5	6	7
从来没有	一年几次或更少	一个月一次或更少	一个月几次	一周一次	一周几次	每天

Factor	Item#	Original English	Chinese Mandarin Translation	Anchors 1 (never), to 7 (always) 1（从来没有），7（总是）
Vigour (VI)	E8	When I get up in the morning, I feel like going to class	早晨一起床，我就乐意去学习	
	E1	When I'm doing my work as a student, I feel bursting with energy	学习时，我感到精力充沛	

	E17	As far as my studies are concerned I always persevere, even when things do not go well	即使学习不顺利，我也毫不气馁，能够坚持不懈
	E12	I can continue studying for very long periods at a time	我能持续学习很长时间，中间不需要休息
	E15	I am very resilient, mentally, as far as my studies are concerned	学习时，即使精神疲劳，我也能很快恢复
	E4	I feel strong and vigorous when I'm studying or going to class	学习时，我浑身有力而且干劲十足
Dedication (DE)	E13	To me, my studies are challenging	我发现学习富有挑战性
	E7	My study inspires me	学习激发我的灵感
	E5	I am enthusiastic about my studies	我对学习充满热情
	E10	I am proud of my studies	我因我的学习而感自豪
	E2	I find my studies full of meaning and purpose	我发现学习目的明确，而且很有意义
Absorption (AB)	E6	When I am studying, I forget everything else around me	学习时，我忘了周围的一切
	E3	Time flies when I am studying	学习时，我感到时间过得很快
	E14	I get carried away when I am studying	学习时，我心里只想着学习
	E16	It is difficult to detach myself from my studies	我难以放下手中的学习
	E11	I am immersed in my studies	我沉浸在学习中
	E9	I feel happy when I am studying intensely	全身心投入学习时，我感到很快乐

Appendix 11: The Government-Funded Teacher Education Policy Satisfaction Scale Developed by Present Study (The GFTEP-S Scale, Chinese and English Translation)

Factor	Item#	English Translation	Chinese	Anchors 1 (not at all satisfied), to 7 (extremely satisfied)
		What is your degree of satisfaction with each of the following terms of the Government-Funded Teacher Education Policy (GFTEP)?	您对师范生免费教育政策的以下条款的满意程度如何？	1（极为不满意），7（极为满意）
Encouraging Terms	F1	Tuition and accommodation fees for the policy-funded pre-service teachers (PFPTs) are waived, and cost of living is subsidised during their four-year undergraduate studies	免费教育师范生在校学习期间免除学费，免缴住宿费，并补助生活费	
	F3	Teacher-training programmes of the six national key universities enrol qualified school graduates in advance	部属师范大学师范专业实行提前批次录取	
	F5	The PFPTs have a chance to change their original major at university	免费师范生可按照学校规定在师范专业范围内进行二次专业选择	
	F7	Local governments involved should take actions to ensure that every graduate of PFPTs who obeys the contract can get a job to teach in a primary or secondary school	有关省级政府和教育行政部门确保每一位到中小学校任教的免费师范毕业生有编有岗，切实为每一位毕业生安排落实任教学校	
	F9	During teaching services, graduates of PFPTs can transfer among different schools or do jobs about school management	免费师范毕业生在协议规定服务期内，可在学校间流动或从事教育管理工作	

	F11	Graduates of PFPTs who meet national enrolment requirements can enrol and become a non-academic postgraduate without attending examinations	免费师范毕业生经考核符合要求的，可录取为教育硕士专业学位研究生，在职学习专业课程
	F13	Local governments and schools in rural areas should provide basic living conditions including temporary accommodation for graduates of PFPTs teaching there	地方政府和农村学校要为免费师范毕业生到农村任教服务提供必要的工作生活条件和周转住房
Restrictive Terms	F2	All the six national key teacher-training universities implement the GFTEP and only recruit PFPTs	六所教育部直属师范大学都实行师范生免费教育，其师范专业仅招收免费师范生
	F4	Before enrolling in one of the six universities, each PFPT has to sign an agreement with the university and the Educational Executive Department of the province, promising to teach for at least 10 years	免费师范生入学前与学校和生源所在地省级教育行政部门签订协议，承诺毕业后从事中小学教育十年以上
	F6	After graduation, the PFPTs should firstly teach and serve in a rural-area school for 2 years if they are going to work in a city school	到城镇学校工作的免费师范毕业生，应先到农村义务教育学校任教服务二年
	F8	Graduates of PFPTs who break the agreement without valid reasons have to pay all the fees back as well as be fined according to the agreement	免费师范毕业生未按协议从事中小学教育工作的，要按规定退还已享受的免费教育费用并缴纳违约金
	F10	The Educational Executive Department of Province is	省级教育行政部

	responsible for dealing with breach of contract and building credit archive for each PFPT	门负责履约管理，并建立免费师范生的诚信档案
F12	Graduates of PFPTs should teach in a primary or secondary school located in the province where they originally came from	免费师范毕业生一般回生源所在省份中小学任教
F14	Before and after graduation, the PFPTs should not take examinations to become an academic postgraduate	免费师范生毕业前及在协议规定服务期内，一般不得报考脱产研究生

针对您最不满意的条款，您对如何完善该政策的建议是:

In response to the terms that you are most unsatisfied with, please state your suggestions for improving the GFTEP:

Appendix 12: Semi-structured Interview Outline (Chinese and English Translation)

	Chinese	English Translation
A	请介绍下您自己，包括你的兴趣和专业。	Please tell me about yourself including your interests and major.
B	为什么选择将来做中小学教师？	Why did you choose to become a primary/secondary school teacher?
C	你高中毕业时是怎样做出这个决定，去当一名教师的？	How did you make the decision to become a teacher when you graduated from high school?
D	您觉得中小学教师这个职业怎么样？	How do you perceive school teaching as a career?
	可能的跟进问题：	Possible further follow-up questions:
a	您认为中小学教师职业要求高吗？为什么？	Do you think school teaching is demanding? Why / Why not?
b	您觉得中小学教师职业待遇好吗？为什么？	Do you think school teachers are paid well? Why / Why not?
c	您期待从中小学教师职业中得到什么？	What do you expect from the career of school teaching?
d	您觉得社会是怎样看待中小学教师职业的？	According to your understanding, what does the society think about school teaching as a career?
e	您觉得中小学生是怎样看待自己的教师的？	According to your understanding, what do students say about their own teachers?
E	大学期间，总体而言，您感觉自己在师范专业学习过程中，投入的时间和精力多吗？为什么？	Describe yourself as a university student now. Generally speaking, how engaged in terms of time and energy do you feel when you are studying in the teacher-training programme? Why?
F	在“师范生免费教育政策”中，	Of the policy terms in the Government-Funded Teacher Education Policy (the GFTEP), what are the terms that

	（1）哪些规定让您最满意？为什么？（2）哪些规定让您最不满意？为什么？	you are most satisfied with? Why? What are the terms that you are most unsatisfied with? Why?
	可能的跟进问题：	Possible further follow-up questions:
a	你觉得“从事中小学教师职业十年以上”怎么样？为什么？	How do you feel about 10-year bonded school teaching? Why?
b	“到农村从事两年中小学教学”，你觉得怎么样？为什么？	How do you feel about 2-year teaching in rural-area schools after graduation? Why?
c	你觉得“回生源所在省份从教”怎么样？为什么？	How do you feel about going back to your home province to teach? Why?
d	毕业后你想读全日制硕士研究生吗？(1) 如果想，你怎样看待失去攻读全日制硕士的机会？(2) 如果不想，为什么？你将来的计划是怎样的呢？	Would you like to become an academic postgraduate student? If yes, what would you think about losing the opportunity to become an academic postgraduate student? If no, why not, and what’s your plan?
e	你怎样看待“违约的师范生将退还所有免除的费用，同时缴纳违约金”？为什么？	What do you think about refunding and being fined as a result of breaking the contract? Why?
G	听说你们有一个“师范新生面试”环节，你能讲讲你当时参加面试的情况吗（什么时间进行的？有哪些程序？哪些问题？要求严格吗？）？你觉得这个面试怎样？有用吗？为什么？	There is an interview for every newly recruited pre-service teacher in the policy university. Can you tell me something about the interview you participated in (date, procedures, questions, requirements, etc.)? How did you feel about the interview? Was it useful? Why?
H	总体而言，对“师范生免费教育政策”，您有什么看法？	Overall, what do you think about the Government-Funded Teacher Education Policy (the GFTEP)?

Appendix 13: Summary Statistics of Missing Data for Demographic Information of Participants (Total N=712)

		Gender	Nationality	Home Region	Age
N	Valid	707	706	705	697
	Missing	5	6	7	15
	Missing%	0.70	0.84	0.98	2.11

		Family Month Income	Gao Kao Score	School to Teach	Subject to Teach
N	Valid	595	652	671	675
	Missing	117	60	41	37
	Missing%	16.43	8.43	5.76	5.20

Appendix 14: Summary Statistics of Missing Data for All Items in the Questionnaire (Total N=712)

Item No.	Valid N	Mean	Std. Deviation	Missing N	Missing %
B1	**708**	**4.74**	**1.60**	**4**	**0.56**
B2	699	5.06	1.39	13	1.83
B3	703	3.74	1.57	9	1.26
B4	702	5.01	1.44	10	1.40
B5	700	5.11	1.36	12	1.69
B6	703	4.91	1.37	9	1.26
B7	706	4.24	1.65	6	0.84
B8	704	3.64	1.59	8	1.12
B9	703	4.97	1.40	9	1.26
B10	705	3.46	1.81	7	0.98
B11	707	4.59	1.63	5	0.70
B12	705	4.83	1.45	7	0.98
B13	705	5.26	1.30	7	0.98
B14	701	5.01	1.33	11	1.54
B15	704	5.19	1.41	8	1.12
B16	703	4.39	1.38	9	1.26
B17	703	4.39	1.31	9	1.26
B18	707	4.91	1.32	5	0.70
B19	703	4.39	1.42	9	1.26
B20	700	5.18	1.30	12	1.69
B21	698	4.72	1.45	14	1.97
B22	702	4.78	1.43	10	1.40
B23	704	4.86	1.31	8	1.12
B24	704	4.96	1.34	8	1.12
B25	707	5.24	1.39	5	0.70
B26	701	4.85	1.32	11	1.54
B27	699	4.11	1.64	13	1.83
B28	703	4.83	1.33	9	1.26
B29	705	4.77	1.40	7	0.98
B30	700	4.86	1.34	12	1.69
B31	702	4.73	1.34	10	1.40
B32	705	4.08	1.49	7	0.98
B33	700	4.56	1.37	12	1.69
B34	702	4.06	1.51	10	1.40
B35	701	3.47	1.67	11	1.54
B36	701	4.59	1.39	11	1.54
B37	697	4.89	1.34	15	2.11
B38	702	4.66	1.39	10	1.40
C1	702	3.99	1.48	10	1.40
C2	697	4.70	1.30	15	2.11
C3	700	4.03	1.31	12	1.69
C4	699	4.77	1.34	13	1.83
C5	701	4.93	1.32	11	1.54
C6	703	4.80	1.28	9	1.26

Appendix 14: Continued

Item No.	Valid N	Mean	Std. Deviation	Missing N	Missing %
C7	693	4.53	1.33	19	2.67
C8	702	4.84	1.38	10	1.40
C9	703	5.16	1.40	9	1.26
C10	701	4.98	1.22	11	1.54
C11	701	4.51	1.38	11	1.54
C12	700	4.43	1.36	12	1.69
C13	699	4.96	1.28	13	1.83
C14	704	5.25	1.25	8	1.12
D1	705	4.95	1.41	7	0.98
D2	701	4.30	1.37	11	1.54
D3	697	4.86	1.40	15	2.11
D4	701	3.78	1.53	11	1.54
D5	701	4.93	1.36	11	1.54
D6	704	4.16	1.46	8	1.12
E1	700	4.58	1.22	12	1.69
E2	701	4.60	1.18	11	1.54
E3	697	4.85	1.24	15	2.11
E4	700	4.58	1.15	12	1.69
E5	701	4.58	1.18	11	1.54
E6	699	4.35	1.22	13	1.83
E7	701	4.48	1.23	11	1.54
E8	701	4.21	1.33	11	1.54
E9	701	4.95	1.27	11	1.54
E10	702	4.66	1.26	10	1.40
E11	700	4.29	1.28	12	1.69
E12	701	3.94	1.34	11	1.54
E13	701	4.91	1.19	11	1.54
E14	701	4.32	1.29	11	1.54
E15	702	4.20	1.27	10	1.40
E16	700	4.06	1.31	12	1.69
E17	702	4.61	1.28	10	1.40
F1	699	5.57	1.39	13	1.83
F2	696	4.87	1.45	16	2.25
F3	**689**	**5.05**	**1.32**	**23**	**3.23**
F4	700	4.31	1.46	12	1.69
F5	700	5.24	1.20	12	1.69
F6	700	4.63	1.39	12	1.69
F7	700	5.30	1.24	12	1.69
F8	699	4.93	1.35	13	1.83
F9	698	5.28	1.23	14	1.97
F10	700	5.23	1.26	12	1.69
F11	699	5.37	1.26	13	1.83
F12	694	4.61	1.42	18	2.53
F13	699	5.21	1.24	13	1.83
F14	698	4.20	1.64	14	1.97

Appendix 15: Correlations among the Full Set of Variables on the CCM Scale

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19
B1	1																		
B2	.376**	1																	
B3	.251**	.147**	1																
B4	.189**	.443**	.238**	1															
B5	.560**	.379**	.291**	.362**	1														
B6	.486**	.330**	.275**	.288**	.636**	1													
B7	.624**	.201**	.293**	.112**	.459**	.411**	1												
B8	.162**	.123**	.330**	.147**	.206**	.292**	.303**	1											
B9	.457**	.268**	.243**	.199**	.504**	.540**	.441**	.233**	1										
B10	-.157**	-.014	.108**	-.021	-.030	-.056	-.107**	.188**	-.058	1									
B11	.760**	.284**	.246**	.154**	.489**	.440**	.641**	.195**	.450**	-.161**	1								
B12	.542**	.266**	.222**	.158**	.485**	.425**	.463**	.170**	.488**	-.026	.651**	1							
B13	.317**	.305**	.135**	.332**	.340**	.329**	.215**	.107**	.239**	-.009	.330**	.373**	1						
B14	.290**	.444**	.198**	.338**	.360**	.377**	.230**	.213**	.304**	.044	.293**	.394**	.556**	1					
B15	.381**	.211**	.219**	.109**	.415**	.436**	.287**	.133**	.448**	-.003	.402**	.453**	.339**	.380**	1				
B16	.073	.265**	.267**	.423**	.195**	.189**	.073	.251**	.113**	.123**	.110**	.153**	.305**	.381**	.115**	1			
B17	.463**	.240**	.288**	.192**	.495**	.430**	.446**	.283**	.404**	.030	.540**	.453**	.249**	.281**	.323**	.298**	1		
B18	.371**	.233**	.280**	.198**	.459**	.579**	.348**	.238**	.492**	.004	.418**	.435**	.326**	.362**	.451**	.275**	.497**	1	
B19	.160**	.223**	.309**	.230**	.255**	.318**	.219**	.327**	.287**	.146**	.254**	.248**	.281**	.344**	.226**	.425**	.393**	.433**	1
B20	.373**	.267**	.150**	.219**	.388**	.439**	.312**	.140**	.439**	-.104**	.380**	.396**	.381**	.414**	.387**	.193**	.282**	.477**	.326**

Appendix 15: Continued

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19
B21	.121**	.162**	.317**	.232**	.245**	.242**	.157**	.184**	.187**	.075*	.206**	.177**	.326**	.314**	.244**	.259**	.204**	.284**	.318**
B22	.437**	.191**	.207**	.163**	.476**	.390**	.463**	.195**	.454**	-.010	.504**	.716**	.273**	.334**	.402**	.167**	.392**	.451**	.290**
B23	.223**	.281**	.189**	.368**	.292**	.251**	.211**	.199**	.202**	-.021	.287**	.203**	.479**	.397**	.221**	.378**	.265**	.327**	.368**
B24	.251**	.392**	.152**	.371**	.361**	.353**	.241**	.182**	.310**	.023	.282**	.327**	.443**	.639**	.297**	.395**	.276**	.359**	.383**
B25	.390**	.192**	.209**	.115**	.430**	.404**	.312**	.114**	.421**	-.089*	.433**	.439**	.287**	.304**	.688**	.172**	.326**	.449**	.274**
B26	.386**	.192**	.244**	.152**	.436**	.546**	.332**	.213**	.502**	.003	.386**	.461**	.297**	.352**	.467**	.195**	.394**	.603**	.330**
B27	-.157**	-.012	.110**	.061	-.002	.038	-.159**	.160**	-.073	.387**	-.165**	-.067	.009	.086*	-.012	.160**	.035	.030	.202**
B28	.415**	.266**	.216**	.185**	.465**	.470**	.377**	.214**	.589**	-.012	.466**	.481**	.210**	.301**	.395**	.160**	.442**	.515**	.335**
B29	.452**	.227**	.198**	.144**	.462**	.409**	.413**	.202**	.432**	-.027	.503**	.681**	.279**	.334**	.378**	.149**	.421**	.433**	.263**
B30	.305**	.258**	.162**	.354**	.312**	.274**	.245**	.172**	.205**	.045	.309**	.302**	.546**	.432**	.251**	.344**	.279**	.323**	.409**
B31	.376**	.251**	.223**	.233**	.448**	.380**	.371**	.270**	.336**	-.025	.379**	.331**	.302**	.298**	.322**	.215**	.413**	.364**	.301**
B32	.211**	.051	.527**	.145**	.238**	.249**	.289**	.332**	.220**	.067	.285**	.192**	.148**	.207**	.205**	.260**	.367**	.254**	.389**
B33	.472**	.222**	.283**	.192**	.511**	.424**	.441**	.234**	.356**	-.059	.517**	.441**	.335**	.287**	.322**	.228**	.539**	.414**	.333**
B34	.219**	.191**	.289**	.153**	.235**	.211**	.226**	.410**	.155**	.143**	.244**	.228**	.186**	.317**	.173**	.356**	.351**	.284**	.395**
B35	-.103**	-.030	.210**	.062	-.068	-.027	-.052	.210**	-.065	.325**	-.077*	-.049	-.052	-.002	-.073	.150**	.082*	.006	.168**
B36	.377**	.212**	.254**	.094*	.424**	.439**	.343**	.282**	.443**	.099**	.410**	.441**	.209**	.285**	.388**	.156**	.404**	.491**	.294**
B37	.436**	.209**	.191**	.125**	.446**	.480**	.320**	.183**	.572**	-.013	.453**	.507**	.250**	.282**	.430**	.111**	.412**	.468**	.306**
B38	.368**	.190**	.230**	.131**	.436**	.470**	.307**	.328**	.496**	.071	.354**	.430**	.181**	.299**	.326**	.195**	.421**	.456**	.342**
Correlations Significant at .01 Level	36	33	37	33	34	34	35	37	34	12	36	34	34	34	34	35	34	34	37

Appendix 15: Continued

	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	B33	B34	B35	B36	B37	B38
B20	1																		
B21	.293**	1																	
B22	.419**	.226**	1																
B23	.328**	.337**	.222**	1															
B24	.448**	.326**	.365**	.491**	1														
B25	.414**	.284**	.440**	.279**	.375**	1													
B26	.414**	.244**	.460**	.282**	.328**	.534**	1												
B27	.048	.201**	-.014	.043	.106**	.013	.018	1											
B28	.427**	.241**	.468**	.245**	.321**	.465**	.520**	.051	1										
B29	.410**	.183**	.722**	.217**	.335**	.424**	.435**	.019	.529**	1									
B30	.386**	.299**	.294**	.573**	.456**	.261**	.290**	.101**	.237**	.325**	1								
B31	.319**	.292**	.388**	.271**	.268**	.323**	.358**	.009	.348**	.407**	.348**	1							
B32	.186**	.368**	.287**	.186**	.212**	.236**	.230**	.149**	.293**	.270**	.266**	.383**	1						
B33	.369**	.234**	.441**	.283**	.312**	.406**	.386**	-.032	.397**	.472**	.390**	.463**	.424**	1					
B34	.256**	.253**	.266**	.296**	.337**	.233**	.248**	.155**	.248**	.317**	.277**	.320**	.394**	.413**	1				
B35	-.083*	.159**	.001	.057	.005	-.060	-.005	.404**	.066	.006	.076*	.027	.266**	.037	.236**	1			
B36	.356**	.181**	.443**	.227**	.289**	.390**	.496**	.025	.568**	.481**	.270**	.264**	.284**	.419**	.356**	.186**	1		
B37	.450**	.194**	.491**	.229**	.339**	.474**	.557**	-.051	.630**	.549**	.242**	.324**	.230**	.436**	.301**	.048	.664**	1	
B38	.370**	.185**	.432**	.239**	.335**	.368**	.511**	.053	.584**	.474**	.252**	.314**	.304**	.437**	.384**	.133**	.651**	.676**	1
Correlations Significant at .01 Level	35	37	34	34	35	34	34	14	34	34	35	34	35	34	37	12	35	34	35

Note: * indicates correlations significant at the .05 level (2-tailed); ** indicates correlations significant at the .01 level (2-tailed). Overall Measure of Sample Adequacy: .936; Bartlett's Test of Sphericity: χ^2 (703) =14234.41, Significance: .000

Appendix 16: Measure of Sample Adequacy and Anti-image Correlations for the full set of variables on the CCM scale

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19
B1	.921[a]																		
B2	-.212	.911[a]																	
B3	-.092	-.006	.884[a]																
B4	.027	-.259	-.124	.883[a]															
B5	-.155	-.051	-.078	-.184	.949[a]														
B6	-.067	-.047	.017	-.062	-.316	.951[a]													
B7	-.222	.069	-.096	.068	-.044	-.039	.944[a]												
B8	.060	.016	-.099	-.024	.066	-.139	-.177	.913[a]											
B9	-.021	-.028	-.037	-.041	-.065	-.094	-.122	-.073	.966[a]										
B10	.040	-.031	-.050	.076	-.065	.089	.005	-.101	.003	.715[a]									
B11	-.475	.026	.061	.008	.080	.001	-.209	-.015	.042	.072	.919[a]								
B12	.031	-.022	-.089	.024	-.017	.017	.050	.013	-.076	-.050	-.332	.932[a]							
B13	-.052	.033	.048	-.056	-.006	-.041	.034	.024	.022	-.033	.000	-.140	.931[a]						
B14	.007	-.193	-.011	.029	.005	-.026	.008	-.035	.008	.008	.037	-.106	-.276	.920[a]					
B15	-.014	.008	-.045	.037	-.002	-.077	.058	.000	-.105	-.095	-.004	-.069	-.068	-.168	.912[a]				
B16	.038	-.022	-.073	-.248	.047	.024	.064	-.041	.034	-.034	.042	-.026	-.043	-.087	.068	.924[a]			
B17	-.011	-.001	.043	.024	-.141	.031	-.065	-.009	-.022	-.028	-.164	-.062	.033	.014	-.036	-.143	.960[a]		
B18	.041	.039	-.072	.034	.038	-.224	.036	.034	-.051	-.006	-.017	.037	-.021	.018	-.071	-.057	-.182	.956[a]	
B19	.127	-.075	-.056	.052	.061	-.031	-.010	-.070	-.042	-.058	-.056	.024	.009	-.001	.043	-.155	-.099	-.139	.952[a]

Appendix 16: Continued

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19
B20	-.038	-.003	.028	.001	.035	-.055	-.021	.034	-.095	.111	-.003	.024	-.047	-.054	-.026	.026	.094	-.139	-.041
B21	.110	-.005	-.120	-.016	-.039	-.002	.004	.020	.017	-.011	-.081	.039	-.121	-.030	-.002	.007	.048	-.038	-.014
B22	.013	.073	.085	-.042	-.097	.091	-.141	.011	-.021	-.025	.053	-.377	.071	.028	-.010	-.011	.078	-.070	-.048
B23	.075	-.022	-.047	-.075	-.042	.062	-.007	-.053	.020	.072	-.122	.116	-.165	.044	.018	-.072	-.016	-.044	-.037
B24	.068	-.094	.086	-.082	-.012	-.026	-.067	.044	-.024	-.021	-.001	.044	.013	-.388	.095	-.077	.016	.004	-.033
B25	-.013	.015	-.002	.067	-.075	.067	.011	.043	.032	.113	-.057	.012	.032	.124	-.535	-.070	.079	.009	-.026
B26	-.036	.063	-.039	.019	.062	-.166	-.004	.009	-.046	-.028	.074	-.052	-.002	-.075	.025	-.006	-.006	-.231	.002
B27	-.007	.045	.006	.014	-.048	-.087	.126	-.052	.058	-.262	.072	.020	.027	-.011	.024	.004	-.048	.042	-.080
B28	.037	-.072	.076	-.052	-.030	.043	-.035	.033	-.211	.019	-.078	-.004	.065	-.018	.051	.014	-.034	-.093	-.038
B29	.001	-.021	-.005	.033	.005	-.023	.002	-.004	.057	.044	.023	-.239	.024	-.016	.040	.026	-.017	-.013	.066
B30	-.118	.060	.096	-.119	.026	.055	-.016	.033	.044	-.052	.042	-.025	-.229	-.016	-.016	-.017	.053	.006	-.163
B31	-.019	-.067	.097	-.024	-.120	.005	-.053	-.087	-.012	.013	.012	.081	-.035	-.005	-.065	.000	-.065	-.018	.001
B32	.038	.123	-.381	.022	.080	-.031	-.002	-.034	-.010	.061	-.076	.132	.026	-.023	-.024	-.015	-.077	.092	-.105
B33	.008	.005	.002	.022	-.146	-.022	-.043	.045	.047	.045	-.080	.011	-.095	.057	.071	.002	-.181	-.002	.007
B34	-.058	-.033	-.011	.050	.025	.094	.013	-.211	.108	-.042	.020	.022	.065	-.076	.027	-.119	-.032	-.009	-.088
B35	.010	.003	-.068	-.072	.110	.002	-.005	-.028	.040	-.131	.015	-.004	.036	.023	.046	-.009	-.031	.029	.005
B36	.049	-.070	-.031	.087	-.071	-.001	-.048	-.049	.061	-.074	-.036	.030	.011	-.012	-.076	.004	.023	-.130	.072
B37	-.057	.047	.006	-.013	.043	-.042	.133	.081	-.166	-.011	-.025	-.010	-.052	.081	-.023	.072	-.029	.096	-.065
B38	-.070	.058	.043	.034	-.045	-.060	.054	-.122	-.067	-.015	.107	-.055	.086	-.026	.052	-.021	-.025	.015	-.024

Appendix 16: Continued

	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	B33	B34	B35	B36	B37	B38
B20	.970[a]																		
B21	-.079	.944[a]																	
B22	-.064	-.041	.932[a]																
B23	.005	-.089	-.005	.923[a]															
B24	-.098	-.037	-.094	-.172	.931[a]														
B25	-.022	-.071	-.022	-.041	-.158	.910[a]													
B26	.023	-.002	-.063	-.042	.054	-.208	.964[a]												
B27	-.111	-.102	.021	.052	-.051	-.065	-.004	.702[a]											
B28	-.043	-.036	.052	-.030	.033	-.097	-.053	-.086	.964[a]										
B29	-.010	.055	-.376	.026	.010	-.027	.056	-.081	-.135	.950[a]									
B30	-.098	.009	.048	-.320	-.065	.042	-.028	-.043	.059	-.097	.920[a]								
B31	-.008	-.085	-.051	.009	.070	.019	-.069	.036	-.016	-.098	-.079	.963[a]							
B32	.040	-.149	-.101	.097	-.025	.001	.037	-.014	-.086	-.003	-.079	-.160	.887[a]						
B33	-.041	.039	-.011	.053	.014	-.104	.013	.054	.044	-.052	-.120	-.099	-.159	.963[a]					
B34	-.059	-.019	.036	-.073	-.067	-.024	.014	-.013	.078	-.086	.060	-.064	-.090	-.164	.936[a]				
B35	.098	-.060	-.024	-.034	.054	.026	.037	-.288	-.026	.041	-.030	-.005	-.110	.005	-.079	.774[a]			
B36	.008	.045	-.027	.015	.029	.028	-.043	.060	-.117	-.029	-.082	.118	-.012	-.024	-.067	-.164	.948[a]		
B37	-.096	-.018	.002	.006	-.076	-.049	-.115	.113	-.145	-.124	.064	-.018	.058	-.029	-.044	-.039	-.277	.945[a]	
B38	.004	.028	.010	-.034	-.051	.031	-.076	.003	-.136	-.003	.003	.010	-.043	-.071	-.083	-.020	-.238	-.268	.956[a]

Note: Measures of sample adequacy (MSA) are indicated with an "a" mark; anti-image correlations are in the off-diagonal.

Appendix 17: Correlations among the Full Set of Variables on the UWES-S-17 Scale

	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16	E17
E1	1																
E2	.673**	1															
E3	.636**	.598**	1														
E4	.628**	.687**	.657**	1													
E5	.584**	.657**	.606**	.675**	1												
E6	.460**	.504**	.508**	.615**	.646**	1											
E7	.481**	.501**	.484**	.586**	.596**	.645**	1										
E8	.404**	.445**	.400**	.497**	.536**	.580**	.500**	1									
E9	.446**	.458**	.472**	.515**	.530**	.473**	.542**	.389**	1								
E10	.449**	.524**	.491**	.540**	.535**	.506**	.559**	.490**	.558**	1							
E11	.445**	.508**	.429**	.530**	.548**	.560**	.527**	.571**	.506**	.681**	1						
E12	.364**	.405**	.363**	.452**	.422**	.506**	.423**	.513**	.348**	.466**	.592**	1					
E13	.365**	.389**	.408**	.378**	.386**	.341**	.382**	.272**	.426**	.452**	.389**	.334**	1				
E14	.403**	.428**	.495**	.515**	.475**	.554**	.494**	.475**	.431**	.504**	.560**	.600**	.440**	1			
E15	.367**	.436**	.426**	.508**	.523**	.523**	.482**	.487**	.393**	.476**	.501**	.538**	.340**	.592**	1		
E16	.388**	.436**	.405**	.490**	.497**	.522**	.503**	.542**	.401**	.444**	.498**	.521**	.334**	.556**	.591**	1	
E17	.380**	.404**	.389**	.497**	.481**	.487**	.478**	.459**	.442**	.476**	.478**	.425**	.414**	.441**	.489**	.529**	1

Note: Overall Measure of Sample Adequacy: .957; Bartlett's Test of Sphericity: χ^2 (136) =7236.058, Significance: .000; ** indicates that correlation is significant at the 0.01 level (2-tailed).

Appendix 18: Measure of Sample Adequacy and Anti-image Correlations for the Full Set of Variables on the UWES-S-17 Scale

	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16	E17
E1	.945[a]																
E2	-.317	.946[a]															
E3	-.274	-.061	.951[a]														
E4	-.120	-.255	-.217	.964[a]													
E5	-.066	-.213	-.135	-.116	.964[a]												
E6	.040	.033	-.041	-.127	-.211	.959[a]											
E7	-.064	.014	.025	-.083	-.082	-.270	.966[a]										
E8	-.025	-.003	.015	-.010	-.096	-.166	-.038	.968[a]									
E9	-.041	.021	-.054	-.053	-.099	-.005	-.160	.031	.970[a]								
E10	.038	-.090	-.084	-.019	.011	.040	-.135	-.051	-.169	.948[a]							
E11	-.029	-.053	.088	-.001	-.063	-.061	.003	-.156	-.086	-.372	.945[a]						
E12	-.033	-.027	.045	-.019	.068	-.078	.037	-.116	.052	.003	-.233	.951[a]					
E13	-.033	-.065	-.085	.058	-.016	.040	-.031	.081	-.125	-.124	.004	-.026	.954[a]				
E14	.018	.052	-.155	-.041	.068	-.116	-.025	.006	-.023	-.017	-.103	-.242	-.165	.950[a]			
E15	.063	-.014	-.010	-.049	-.116	-.023	-.025	-.028	.021	-.052	.011	-.139	.016	-.209	.962[a]		
E16	-.005	-.038	.012	-.001	-.023	-.017	-.083	-.167	-.015	.041	-.006	-.099	.009	-.140	-.217	.961[a]	
E17	-.013	.050	.034	-.104	-.031	-.048	-.037	-.065	-.074	-.059	-.034	-.024	-.167	.041	-.103	-.192	.968[a]

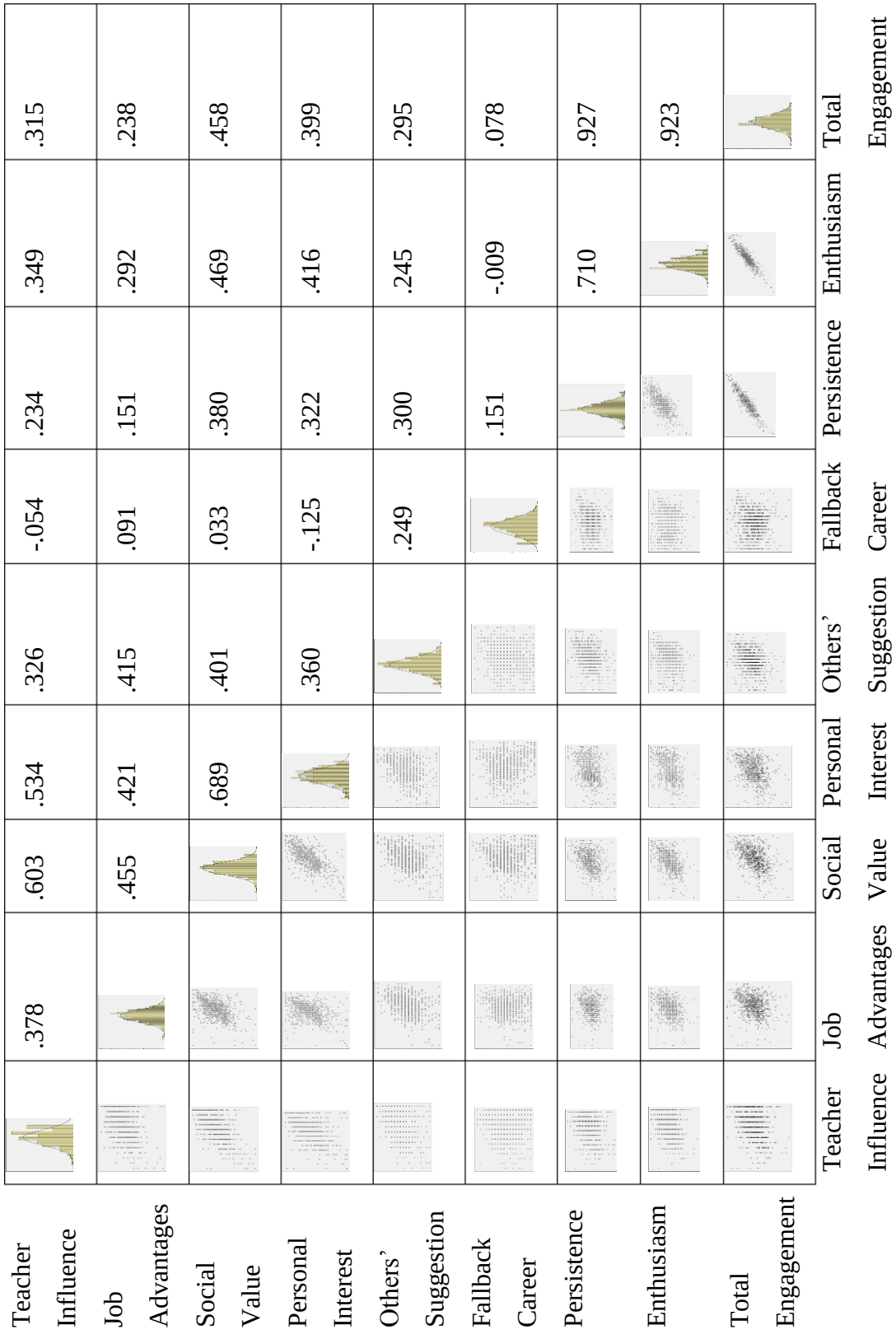
Note: [a] Measures of Sampling Adequacy (MSA); anti-image correlations are in the off-diagonal.

Appendix 19: Pattern Matrix of Reduced Set of 13 Variables on UWES-S Scale: Oblique-Rotated Component Analysis with Three Fixed Factors

	Factor and Factor Loading		
	1	2	3
E1		-.912	
E2		-.844	
E3		-.841	
E4		-.708	
E5		-.614	
E9			.688
E8	.579		
E11	.564		
E12	.933		
E14	.795		
E15	.731		
E16	.668		
E17			.718

Note: Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization.

Appendix 20: Bivariate Profiling of Relationships between Types of Career-Choice Motivation and Dimensions of Study Engagement: Scatterplot Matrix of Metric Variables



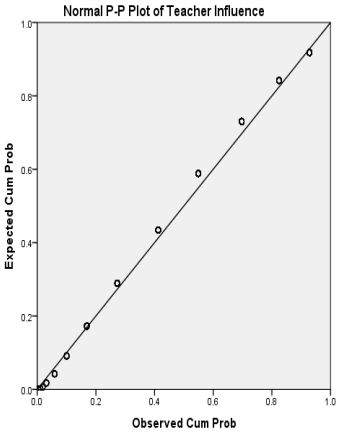
Note: Values above the diagonal are bivariate correlations, with corresponding scatterplot below the diagonal. Diagonal portrays the distribution of each variable.

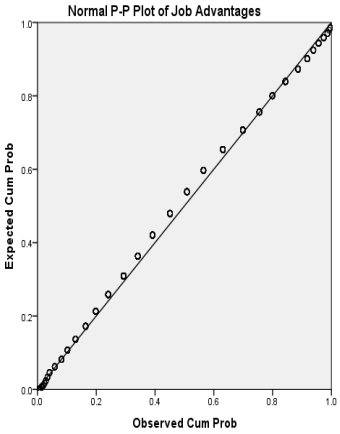
Appendix 21: Assessing Variance Dispersion of Metric Variable across Levels of Nonmetric Variables by Levene Tests

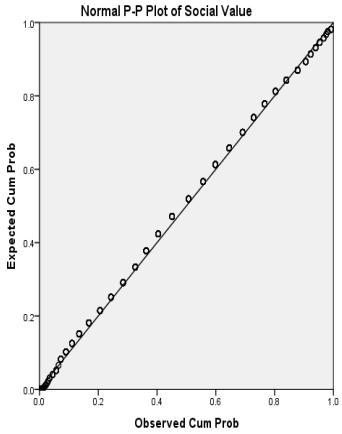
Metric Variable	Gender		Ethnicity		Home Region		Year of Study		Family Income		NCEE Score	
	Levene Statistic	Sig.	Levene Statistic	Sig.	Levene Statistic	Sig.	Levene Statistic	Sig.	Levene Statistic	Sig.	Levene Statistic	Sig.
Teacher Influence	1.066	.302	.258	.611	.035	.852	.810	.368	.816	.443	.240	.787
Job Advantages	2.788	.095	.454	.501	.001	.972	**4.829**	**.028**	.329	.720	1.098	.334
Social Value	.010	.922	.278	.598	.518	.472	.048	.827	1.221	.295	.153	.858
Personal Interest	.586	.444	2.545	.111	.195	.659	.017	.898	.283	.753	1.811	.164
Others' Suggestion	.002	.968	1.943	.164	.038	.846	1.073	.301	.975	.378	1.530	.217
Fallback Career	.938	.333	2.498	.114	.696	.404	2.528	.112	2.575	.077	.217	.805
Persistence	**4.462**	**.035**	.035	.851	.026	.873	.231	.631	**6.088**	**.002**	.169	.844
Enthusiasm	.048	.827	.513	.474	.340	.560	.560	.455	1.555	.212	.427	.653
Total Engagement	2.167	.141	.086	.770	.304	.581	.029	.864	**4.811**	**.008**	.290	.748

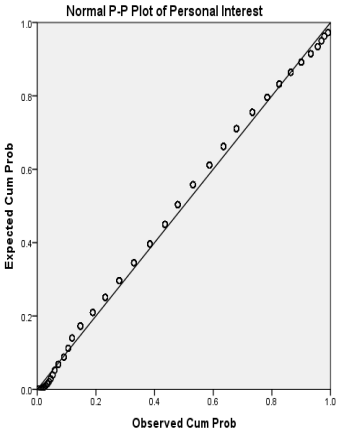
Note: Values represent the Levene statistic value and statistical significance. Values in bold are statistically significant at the .05 level or less.

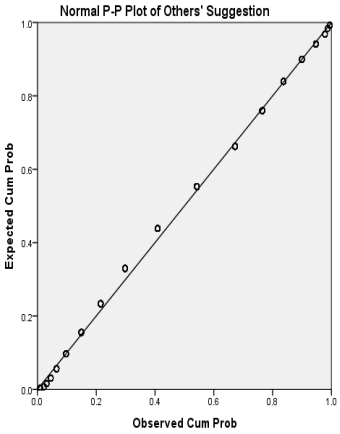
Appendix 22: Normal Probability Plot (P-P Probability Plots) of Metric Variables

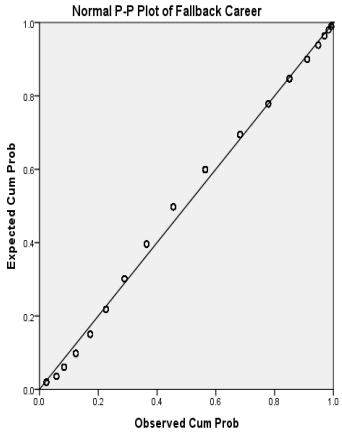


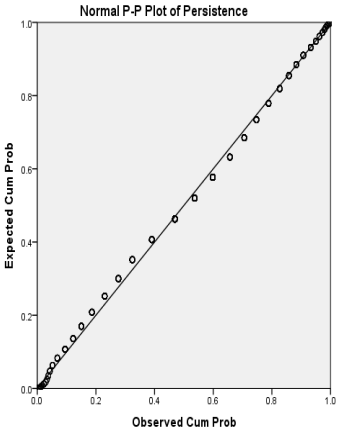


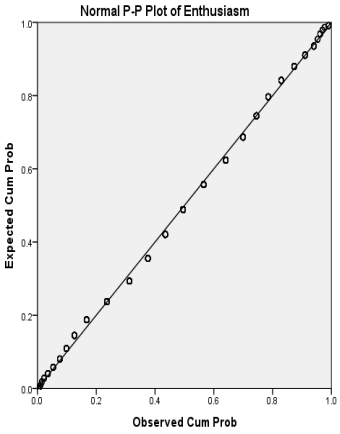


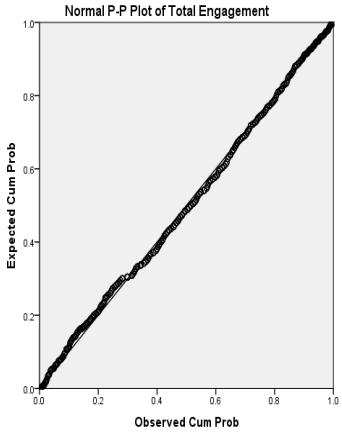












Appendix 23: Distribution Characteristics, Tests of Normality, and Possible Remedies for Metric Variables

	Shape Descriptor				Test of Normality			Applicable Remedies	
	Skewness		Kurtosis						
Variable	Statistic	Z value	Statistic	Z value	Statistic	Sig.	Description of distribution	Trans.	Sig. after remedy
Teacher Influence	-.618	-6.72	.193	1.05	3.407	.000	Negative skewness	None	
Job Advantages	-.637	-6.92	1.204	6.54	1.657	.008	Peakedness, negative skewness	Squared term	.094
Social Value	-.437	-4.5	.548	2.98	1.256	.085	Overall normal distribution	_	
Personal Interest	-.536	-5.83	.287	1.56	1.493	.023	Overall normal distribution	_	
Others' Suggestion	-.315	-3.42	.226	1.23	2.487	.000	Negative skewness	None	
Fallback Career	-.185	-2.01	-.380	-2.07	2.530	.000	Slight negative skewness, platykurtic	None	
Persistence	-.133	-1.45	.624	3.39	1.549	.016	Overall normal distribution	_	
Enthusiasm	-.010	-.11	.190	1.03	1.459	.028	Overall normal distribution	_	
Total Engagement	-.081	-.88	.495	2.69	.717	.683	Overall normal distribution	_	

Note: The z values are derived by dividing the statistics by the appropriate standard errors of .092 (skewness) and .184 (kurtosis). The standard errors were calculated according to the equations: $ses = \sqrt{\frac{6}{N}}$ and $sek = \sqrt{\frac{24}{N}}$ (N=712).

Appendix 24: Analysis of ANOVA for Regression Model between Career-Choice Motivation and Total Engagement

Model	Sum of Squares		df	Mean Square	F	Sig.
1	Regression	123.297	1	123.297	188.760	.000[a]
	Residual	463.769	710	.653		
	Total	587.066	711			
2	Regression	131.982	2	65.991	102.811	.000[b]
	Residual	455.084	709	.642		
	Total	587.066	711			
3	Regression	137.815	3	45.938	72.397	.000[c]
	Residual	449.251	708	.635		
	Total	587.066	711			

Note: [a] Predictors: (Constant), Social Value;

[b] Predictors: (Constant), Social Value, Others' Suggestion;

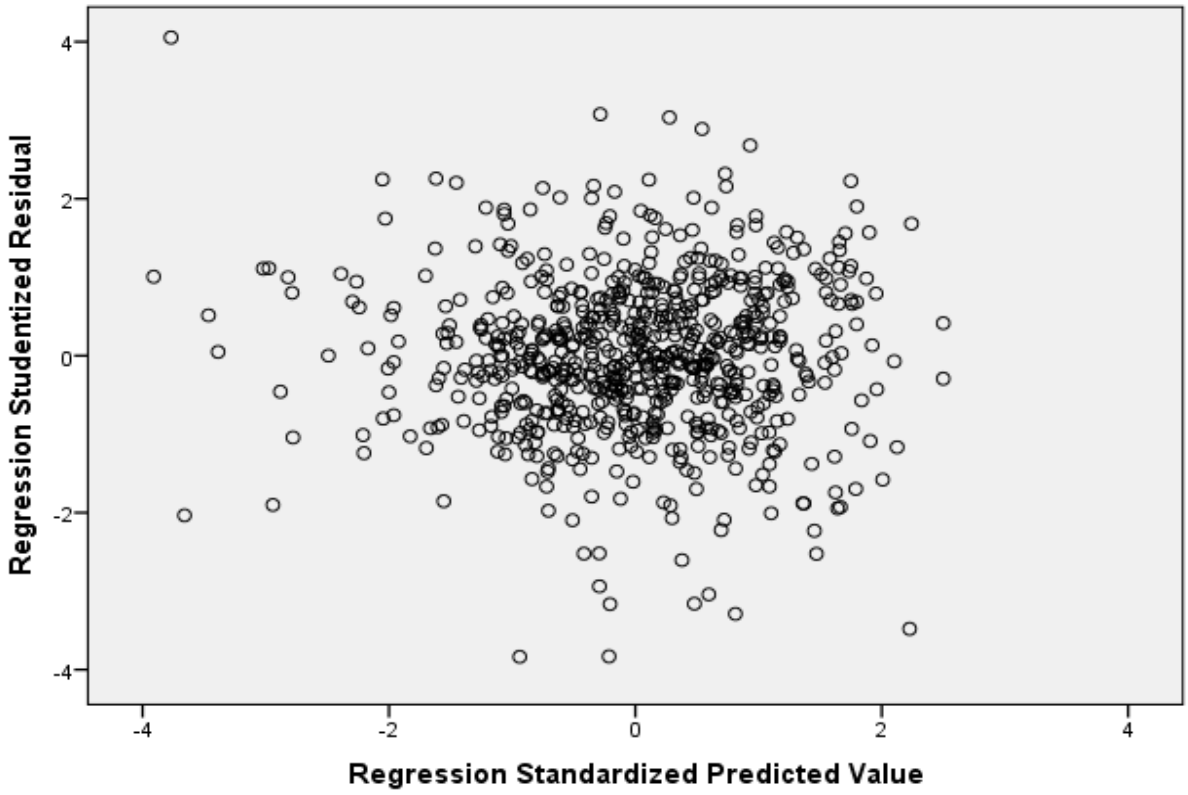
[c] Predictors: (Constant), Social Value, Others' Suggestion, Personal Interest

Appendix 25: Statistics of Variables Excluded from Regression Model for Total Engagement

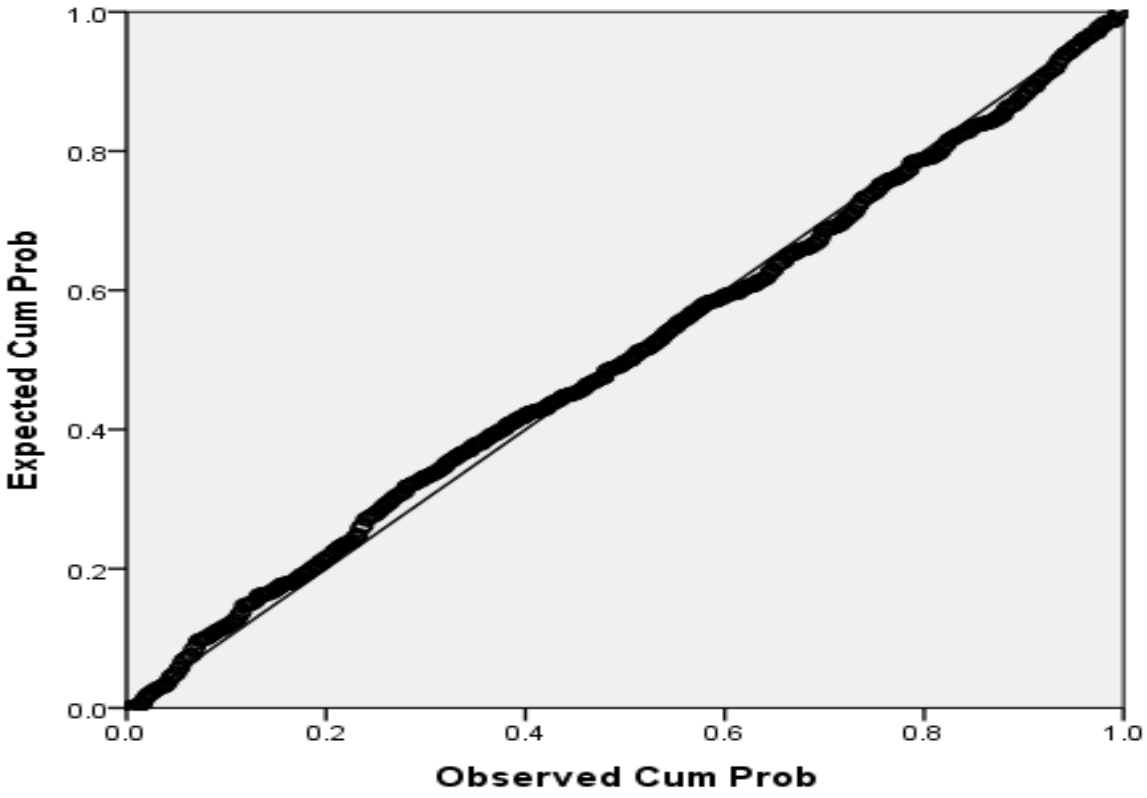
Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
3	Teacher Influence	.020[a]	.464	.643	.017	.604
	Job Advantages	.004[a]	.096	.924	.004	.718
	Fallback Career	.063[a]	1.786	.075	.067	.876

Note: [a] Predictors in the Model: (Constant), Social Value, Others' Suggestion, Personal Interest

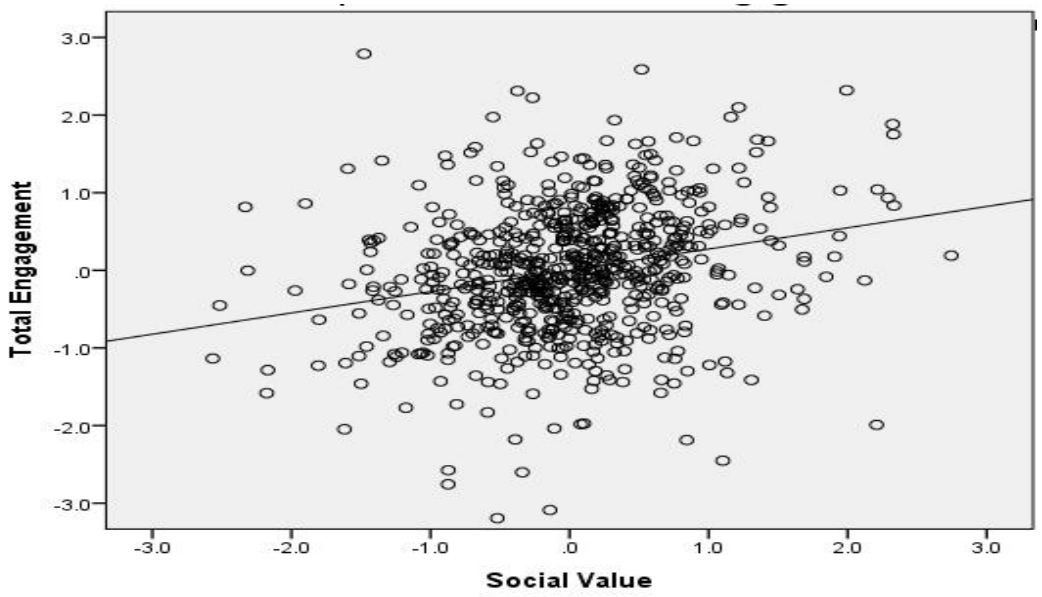
Appendix 26: Analysis of Standardised Residuals

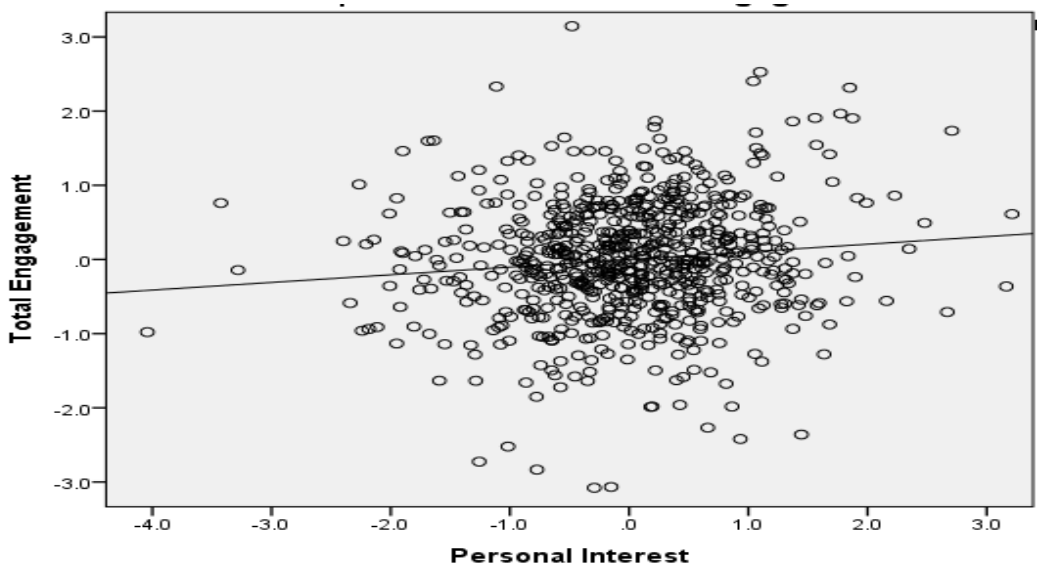


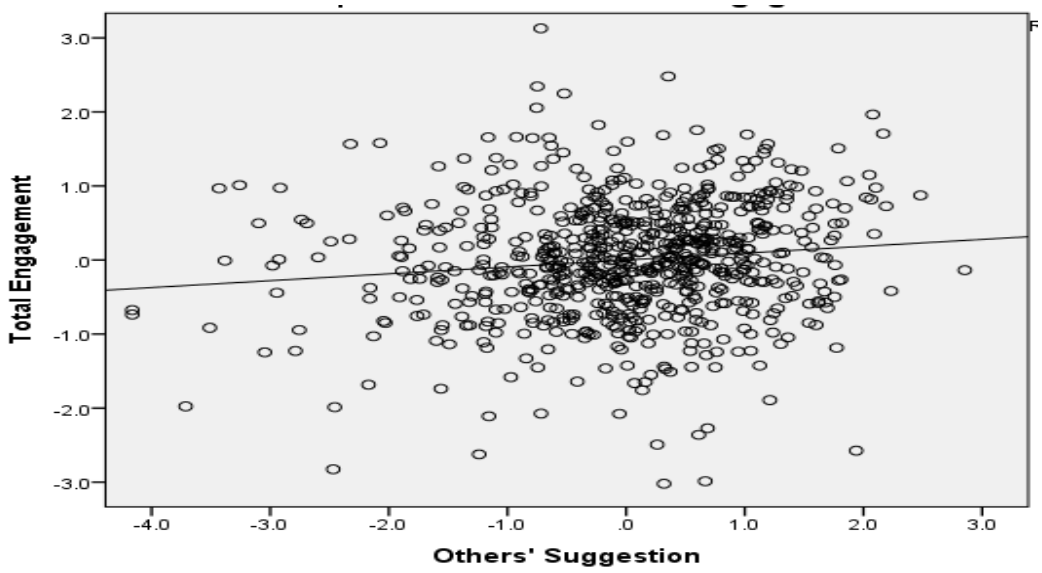
Appendix 27: Normal P-P Plot of Regression Standardised Residual



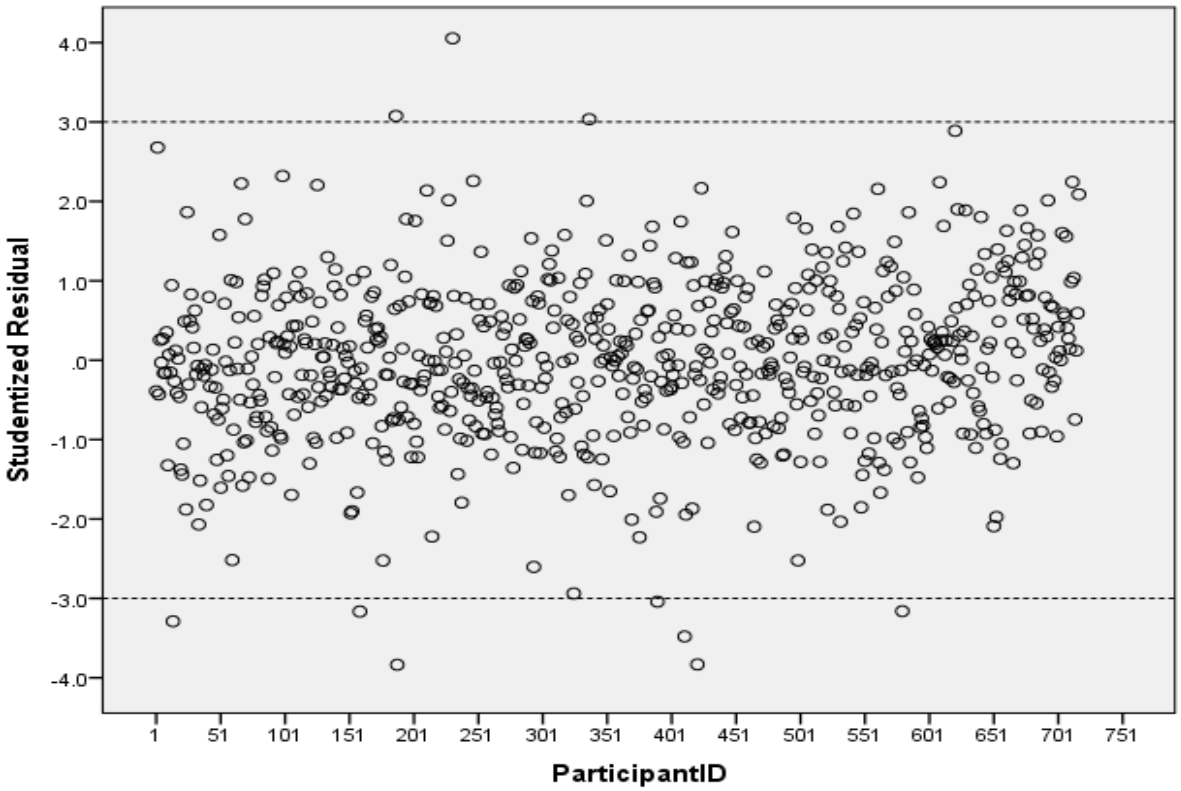
Appendix 28: Partial Regression Plots for Each Independent Variable in the Equation







Appendix 29: Plot of Studentised Residuals



Appendix 30: Coefficients of Variables Entered into the Regression Model for 309 PFPTs

	Regression Coefficients			Statistical Significance		Overall Model Fit			
Model	B	Std. Error	Beta	t	Sig.	R	R Sq	Adjusted R Sq	Std. Error
1 Constant	2.726	.211		12.904	.000	.420[a]	.177	.174	.800
Social Value	.347	.043	.420	8.117	.000				
2 Constant	2.583	.214		12.083	.000	.448[b]	.200	.195	.790
Social Value	.205	.063	.249	3.257	.001				
Others' Suggestion	.172	.057	.230	3.013	.003				
3 Constant	2.395	.230		10.410	.000	.461[c]	.212	.205	.785
Social Value	.181	.064	.220	2.846	.005				
Others' Suggestion	.158	.057	.211	2.753	.006				
Personal Interest	.091	.042	.118	2.142	.033				

Note: The dependent variable is "Total Engagement". [a] Predictors: (Constant), Social Value; [b] Predictors: (Constant), Social Value, Personal Interest; [c] Predictors: (Constant), Social Value, Personal Interest, Others' Suggestion.

Appendix 31: Coefficients of Variables Entered into the Regression Model for 403 SSPTs

	Regression Coefficients			Statistical Significance		Overall Model Fit			
Model	B	Std. Error	Beta	t	Sig.	R	R Sq	Adjusted R Sq	Std. Error
1 Constant	2.379	.194		12.261	.000	.490[a]	.240	.238	.810
Social Value	.443	.039	.490	11.250	.000				
2 Constant	2.199	.205		10.716	.000	.502[b]	.252	.248	.804
Social Value	.396	.043	.438	9.171	.000				
Others' Suggestion	.096	.038	.122	2.554	.011				
3 Constant	2.156	.205		10.501	.000	.510[c]	.261	.255	.801
Social Value	.329	.053	.364	6.175	.000				
Others' Suggestion	.085	.038	.107	2.229	.026				
Personal Interest	.091	.043	.123	2.139	.033				

Note: The dependent variable is "Total Engagement". [a] Predictors: (Constant), Social Value; [b] Predictors: (Constant), Social Value, Personal Interest; [c] Predictors: (Constant), Social Value, Personal Interest, Others' Suggestion.

Appendix 32: Coefficients of Variables of Demographics and Motivation Types Entered into the Regression Model for 712 Chinese Pre-service Teachers

	Regression Coefficients			Statistical Significance		Overall Model Fit			
Model	B	Std. Error	Beta	t	Sig.	R	R Sq	Adjusted R Sq	Std. Error
(Constant)	2.919	.205		14.228	.000	.509[a]	.259	.252	.786
Social Value	.272	.040	.312	6.789	.000				
Others Suggestion	.093	.028	.119	3.321	.001				
Personal Interest	.118	.034	.159	3.495	.001				
Gender	-.190	.064	-.098	-2.960	.003				
Exam Score	-.122	.045	-.087	-2.690	.007				
Home Region	-.147	.064	-.075	-2.303	.022				

Note: The dependent variable is "Total Engagement". [a] (Constant), Social Value, Others' Suggestion, Personal Interest, Gender, Exam Score, Home Region.

Appendix 33: Levene's Tests of Equality of Error Variances for the Six Designs of Two-Way ANOVA

Design	F	df1	df2	Sig.
Intercept + Gender + Funding Source+ Gender * Funding Source	1.351	3	708	.257
Intercept + Year of Study + Funding Source + Year of Study * Funding Source	.603	3	708	.613
Intercept + Ethnicity + Funding Source + Ethnicity * Funding Source	1.141	3	708	.331
Intercept + Home Region + Funding Source + Home Region * Funding Source	.551	3	708	.647
Intercept + Family Income Level + Funding Source + Family Income Level * Funding Source	.667	5	706	.648
Intercept + Above Bar Score Level + Funding Source + Above Bar Score Level * Funding Source	1.358	5	706	.238

Note: Tests the null hypothesis that the error variance of the dependent variable is equal across groups. Dependent Variable: Personal Interest (Intrinsic Motivation).

Appendix 34: Levene's Test of Equality of Error Variance for a Two-Way ANOVA Design

Design	F	df1	df2	Sig.
Intercept + Year of Study + Funding Source + Year of Study * Funding Source	.433	3	708	.730

Note: Tests the null hypothesis that the error variance of the dependent variable is equal across groups. Dependent Variable: Total Engagement.

Appendix 35: Correlations among the Full Set of Variables on the GFTEP-S Scale

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14
F1	1													
F2	.419**	1												
F3	.513**	.429**	1											
F4	.250**	.284**	.390**	1										
F5	.480**	.269**	.409**	.229**	1									
F6	.171**	**.121***	.331**	.561**	.295**	1								
F7	.554**	.277**	.350**	.268**	.528**	.311**	1							
F8	.362**	.237**	.315**	.544**	.324**	.524**	.471**	1						
F9	.517**	.265**	.396**	.280**	.502**	.308**	.696**	.516**	1					
F10	.507**	.342**	.410**	.395**	.411**	.395**	.508**	.642**	.622**	1				
F11	.552**	.293**	.423**	.247**	.392**	.177**	.506**	.382**	.638**	.586**	1			
F12	.186**	.185**	.263**	.472**	.196**	.351**	.216**	.355**	.288**	.272**	.253**	1		
F13	.574**	.231**	.374**	.336**	.512**	.307**	.608**	.510**	.673**	.595**	.590**	.393**	1	
F14	**.135***	.212**	.264**	.515**	**.127***	.382**	.191**	.404**	.211**	.319**	.258**	.486**	.321**	1

Note: Overall Measure of Sample Adequacy: .901; Bartlett's Test of Sphericity: χ^2 (91) =2074.636, Significance: .000; **. Correlation is significant at the .01 level (2-tailed). *. Correlation is significant at the .05 level (2-tailed).

Appendix 36: Measure of Sample Adequacy and Anti-image Correlations for the Full Set of Variables on the GFTEP-S Scale

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14
F1	.897[a]													
F2	-.198	.868[a]												
F3	-.256	-.213	.902[a]											
F4	-.022	-.112	-.136	.877[a]										
F5	-.099	-.052	-.144	.026	**.937[a]**									
F6	.106	.134	-.147	-.298	-.130	**.867[a]**								
F7	-.198	-.049	.068	.017	-.182	-.086	.909[a]							
F8	-.019	.019	.082	-.239	.051	-.200	-.100	.902[a]						
F9	.072	.010	-.061	.060	-.076	-.013	-.377	-.108	.901[a]					
F10	-.080	-.127	-.020	.005	-.012	-.101	.057	-.361	-.161	.916[a]				
F11	-.171	.009	-.112	.013	.025	.123	-.008	.079	-.279	-.229	.917[a]			
F12	.043	-.038	-.022	-.198	.005	-.064	.070	-.012	-.066	.091	-.012	.880[a]		
F13	-.230	.133	.058	.007	-.169	.042	-.126	-.068	-.213	-.127	-.127	-.204	**.922[a]**	
F14	.125	-.079	-.043	-.222	.076	-.077	-.006	-.087	.103	-.031	-.112	-.269	-.107	**.868[a]**

Note: [a] Measures of Sampling Adequacy (MSA)

Appendix 37: Varimax-Rotated Component Analysis Factor Matrix for Full Set of 14 Variables in GFTEP-S Scale

Variable	Factor and Factor Loading [a]		Communality
	1	2	
F9	.812		.697
F1	.797		.638
F7	.779		.629
F11	.757		.592
F13	.753		.653
F10	.691		.620
F5	.682		.477
F3	**.547**		**.399**
F2	**.438**		**.230**
F4		.813	.697
F14		.761	.587
F6		.715	.548
F12		.683	.491
F8	.465	.613	.592

Note: [a] Factor loadings below .40 have not been printed and variables have been sorted by loadings on each factor.

Appendix 38: Correlations among Variables on the PAT Scale

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
C1	1													
C2	.170**	1												
C3	.657**	.163**	1											
C4	.300**	.344**	.282**	1										
C5	.372**	.115**	.388**	.459**	1									
C6	.079*	.410**	.134**	.282**	.157**	1								
C7	.343**	.126**	.362**	.408**	.565**	.253**	1							
C8	.387**	.150**	.366**	.408**	.603**	.169**	.663**	1						
C9	.226**	.268**	.132**	.343**	.320**	.112**	.196**	.284**	1					
C10	.084*	.452**	.048	.281**	.166**	.388**	.117**	.160**	.453**	1				
C11	.450**	.093*	.398**	.375**	.489**	.072	.579**	.573**	.297**	.158**	1			
C12	.384**	.137**	.365**	.390**	.427**	.110**	.554**	.502**	.185**	.148**	.671**	1		
C13	.210**	.282**	.172**	.375**	.306**	.167**	.250**	.317**	.599**	.354**	.328**	.292**	1	
C14	.183**	.247**	.171**	.379**	.335**	.181**	.258**	.336**	.611**	.361**	.339**	.303**	.713**	1

Note: * indicates correlations significant at the .05 level (2-tailed); ** indicates correlations significant at the .01 level (2-tailed). Overall Measure of Sample Adequacy: .857; Bartlett's Test of Sphericity: χ^2 (91) =4314.927, Significance: .000

Appendix 39: Measure of Sample Adequacy and Anti-image Correlations for Variables on the PAT Scale

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
C1	.800[a]													
C2	-.064	.806[a]												
C3	-.553	-.063	.796[a]											
C4	-.040	-.188	-.004	**.937[a]**										
C5	-.023	.092	-.120	-.198	.915[a]									
C6	.042	-.247	-.064	-.101	.004	**.734[a]**								
C7	.038	.037	-.037	-.064	-.191	-.209	.878[a]							
C8	-.065	-.026	-.004	-.025	-.264	.013	-.359	.905[a]						
C9	-.116	-.033	.074	-.056	-.100	.136	.017	-.012	.838[a]					
C10	.035	-.270	.066	-.008	-.013	-.275	.076	.001	-.286	.804[a]				
C11	-.138	.079	-.039	-.010	-.043	.091	-.174	-.148	-.079	-.043	.885[a]			
C12	-.048	-.028	-.040	-.107	.005	.055	-.186	-.036	.143	-.048	-.431	.875[a]		
C13	-.012	-.076	.004	-.058	.015	.003	.002	-.020	-.245	-.015	-.024	-.046	.845[a]	
C14	.080	.023	-.031	-.060	-.039	-.053	.040	-.052	-.281	-.036	-.032	-.068	-.500	.836[a]

Note: [a] Measures of Sampling Adequacy (MSA)

Appendix 40: Correlations among Variables on the DBT Scale

	D1	D2	D3	D4	D5	D6
D1	1					
D2	.159**	1				
D3	.542**	.129**	1			
D4	-.023	.312**	.049	1		
D5	.490**	.113**	.693**	.100**	1	
D6	-.019	.522**	-.064	.505**	-.029	1

Note: ** indicates correlations significant at the .01 level (2-tailed). Overall Measure of Sample Adequacy: .651; Bartlett's Test of Sphericity: χ^2 (15) =1229.278, Significance: .000

Appendix 41: Measure of Sample Adequacy and Anti-image Correlations for Variables on the DBT Scale

	D1	D2	D3	D4	D5	D6
D1	**.777[a]**					
D2	-.118	.644[a]				
D3	-.311	-.078	.643[a]			
D4	.106	-.059	-.031	.634[a]		
D5	-.197	.003	-.573	-.111	.661[a]	
D6	-.003	-.459	.100	-.428	.035	**.568[a]**

Note: [a] Measures of Sampling Adequacy (MSA)

Appendix 42: Results of K-Means Two-Cluster and Four-Cluster Solutions

Variable	2-Cluster Solution				4-Cluster Solution					
	1	2	F	Sig.	1	2	3	4	F	Sig.
Satisfaction with Encouraging Terms	4.98	6.19	214.996	.000	5.81	6.50	5.47	4.21	204.104	.000
Satisfaction with Restrictive Terms	3.59	5.35	430.751	.000	4.65	6.02	3.04	3.90	394.988	.000
Cluster Size	164	145			109	65	71	64		

Note: The mean values of "Satisfaction with Encouraging Terms" and "Satisfaction with Restrictive Terms" were 5.55 and 4.41 respectively. N=309 PFPTs.

Appendix 43: Cross-Classification to Assess Cluster Stability

Cluster Number from First K-Means	Cluster Number from Second K-Means			Total
	1	2	3	
1	0	72	0	72
2	123	0	0	123
3	0	0	114	114
Total	123	72	114	309

Appendix 44: Multivariate F Results Assessing Cluster Solution Criterion Validity

Variable	Cluster Number	Cluster Mean	Multivariate F	Univariate F	Sig.
			13.33		.000
D1	1	4.17		23.63	.000
	2	5.50			
	3	5.03			
D3	1	4.08		29.09	.000
	2	5.61			
	3	4.83			
D5	1	4.17		35.76	.000
	2	5.56			
	3	4.95			